BASE MAP VOL. III

2

LEGEND

improved road

unimproved road

railroad

trail

shaft

adit - long axis points in direction of tunnel

bridge

talus slope

ridge line

mt. peak

pit rim or cliff

4-way intersection

city or town

highway numbers underlined 505

forest road numbers boxed 505

in areas where diggings are in road cuts, banks, etc., X designates the diggings

Mileage indicators: from asterisk (* to asterisk, by the route shown. To make maps easier to orient with state maps, we have included approximate mileages to major towns and cities (i.e., TO SPOKANE ~ 21 miles). ~ means "about" or 'approximately". We have found it impossible to give accurate mileages to cities because of changing city limits, etc. Asterisks placed on any side of an intersection indicate mileage from that intersection.

In underpass-overpass situations, the solid line indicates the uppermost road.

HOW TO USE THIS BOOK

Each locality at the front of the book has a number beside its title. These locality numbers correspond to numbered maps at the back of the book.

Our maps are designed for use in conjunction with a state highway map (available at nominal cost at most gas stations). Routes to all localities are indicated from the nearest major highway, and approximate location of areas is shown on the state base map, page 2. Use your state highway map to get to the area of the locality map.

At the end of this book you will find base maps for the localities covered in Volumes I and II. By referring to these maps when planning your field trips, you will be able to correlate localities in the same general areas.

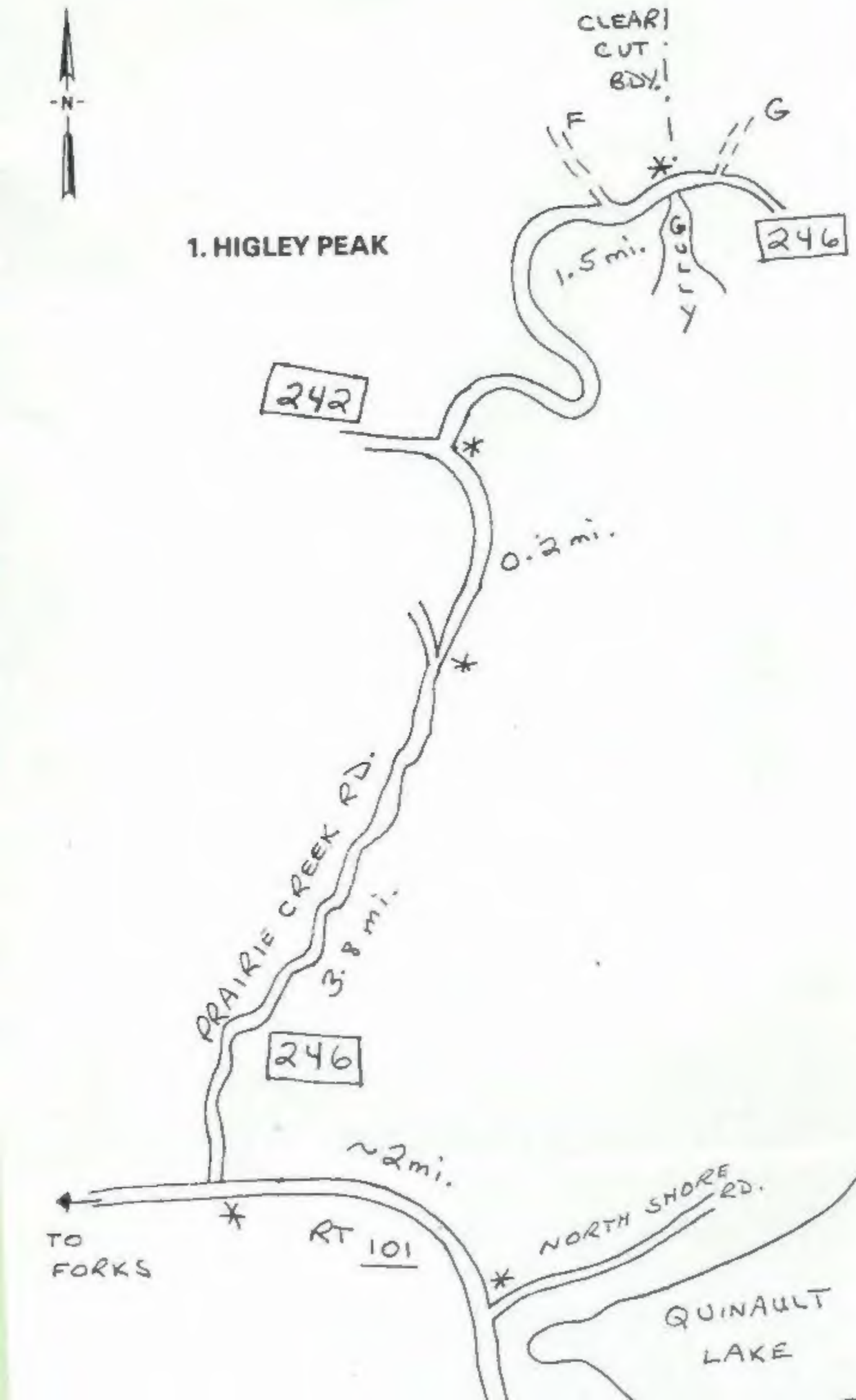
Mileages given on the locality maps show the distance from asterisk (*) to asterisk by the route indicated. Since we visited each locality personally during 1977, these mileages are correct. The distance along trails was measured with a pedometer, but unless you are a really poor judge of distance, you won't need one to find any of the localities. We have tried to use compass directions wherever possible. If your sense of direction is poor, carry a compass. Remember to use your compass at least 100 feet away from large metal objects.

The locality maps are not drawn to scale since mileage is given. In general, the area immediately surrounding the locality is shown in smaller scale (greater enlargement) than the rest of the map in order to include detail. We have not shown every existing road in any area but only those which might possibly be mistaken for the road to the locality.

On some maps we have included the approximate legal description of the locality. If you are not familiar with the township and range system of surveying used in the western states, several books dealing with the subject are available. We recommend *Map and Compass* by Miller. This information would be handy when approaching a locality by a route other than the one we have given but is not necessary when using our maps.

The minerals found at each locality are designated by capital letters (*i.e.*, QUARTZ) if the authors were able to collect specimens of them during a half-day field trip. Minerals designated by capitalized first letter only (*i.e.*, Quartz) are those that have been found at the locality recently by other collectors but not encountered by the authors. Minerals designated in all-lower-case letters (*i.e.*, quartz) are those that have been found at the locality but are not of recent importance.

This book points out only where we have been; it does not give you permission to collect or to trespass on any of the lands mentioned in it. In cases where we have gained access through individuals known to us, we have indicated whom to contact. In none of the localities have we had any trouble with the owners or anyone else. If you respect other people's property and pick up after yourself, you shouldn't have any trouble, either.



1. HIGLEY PEAK

MINERALS: QUARTZ CRYSTALS

The quartz crystals found at Higley Peak are unlike any we have encountered before in Washington. Almost all are double-terminated and some are of bippyramidal habit (exhibiting no prism faces). *Fig. 1.* We found them in singles and in groups up to 2.5 inches. They are colorless and translucent, with internal fractures and fluid inclusions which give them a "fried marble" appearance.

The crystals occur in open vugs in quartz seams. Drusy quartz crystals are abundant between the vugs. You will need hammers, chisels, gads, and at least a small bar to search for vugs.

We noticed several other areas alont 246 which showed quartz veins but found vugs only at the locality shown. We feel that further prospecting at Higley is definitely warranted.

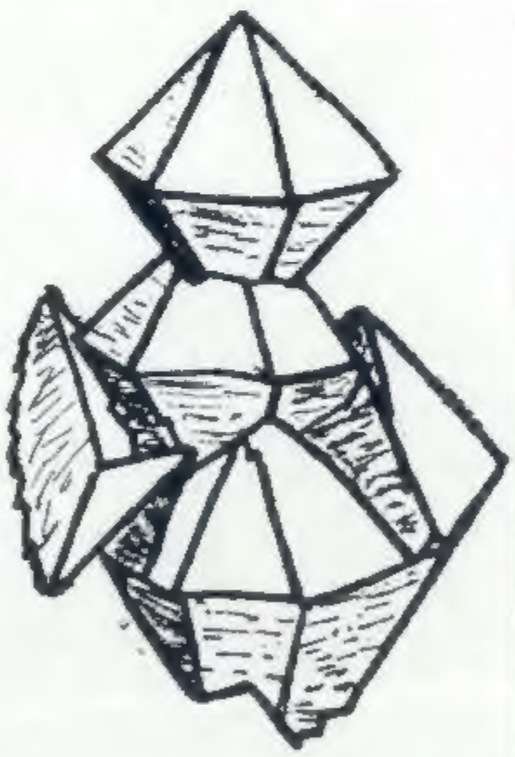
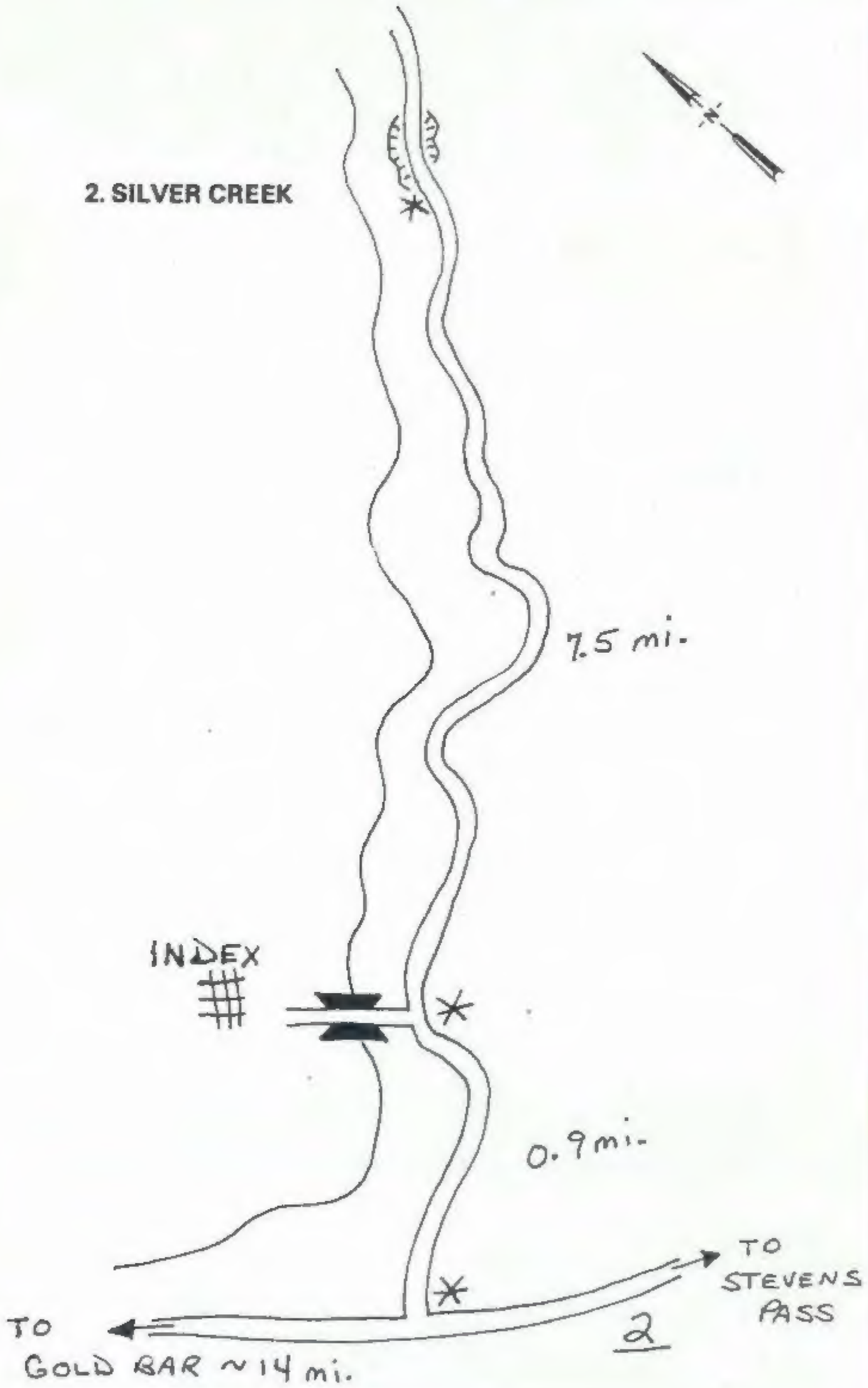


Fig. 1 Bipyramidal quartz, Higley Peak. X 1.

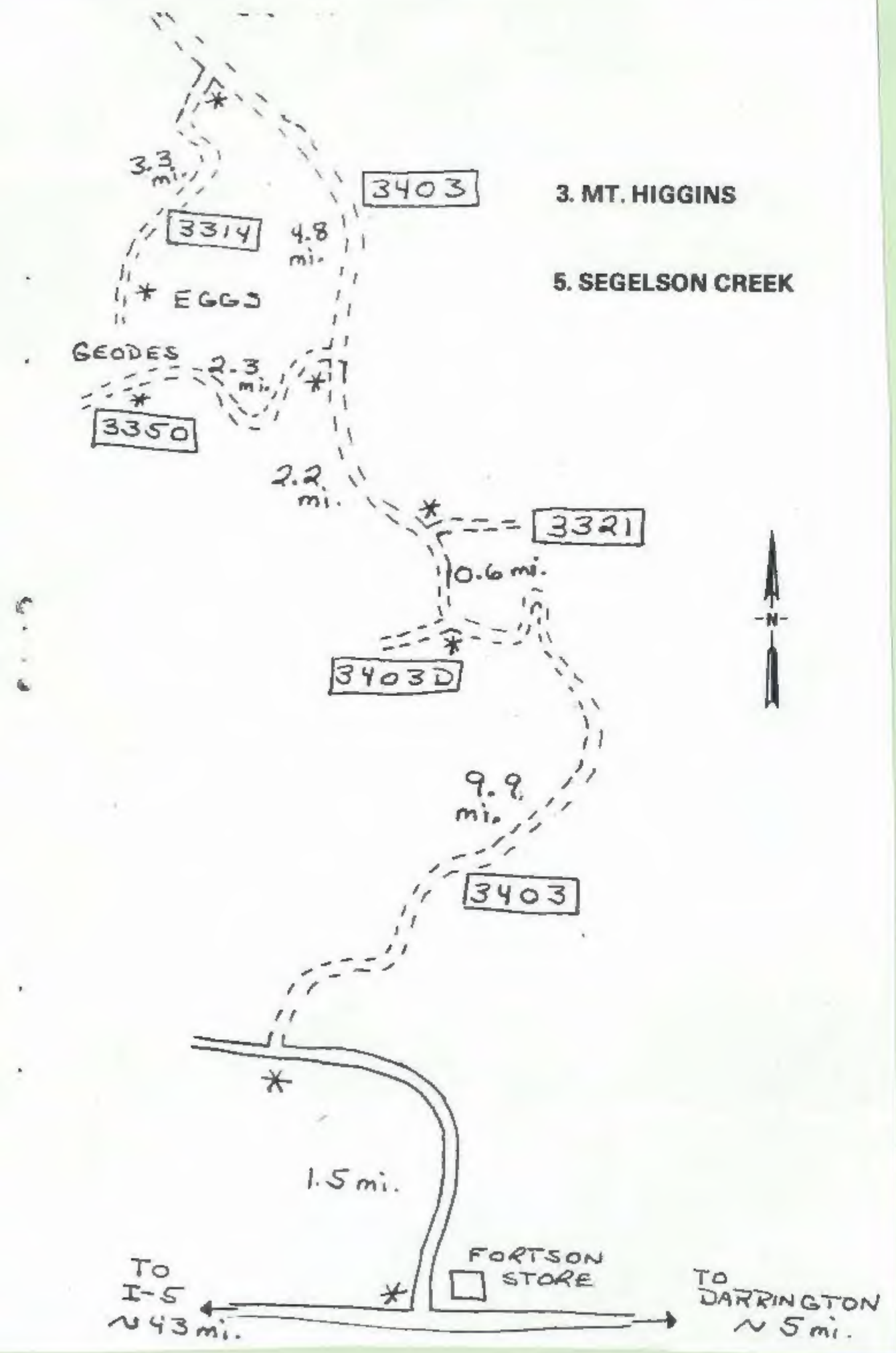


2. SILVER CREEK

MINERALS: MOLYBDENITE, QUARTZ, PYRITE, CHALCOPYRITE, SPHALERITE, Calcite.

This locality is a roadcut and the surrounding rock outcrops between the road and the creek. The molybdenite occurs as crystalline blades associated with quartz and pyrite crystals and small segregations of the other minerals in massive form. The molybdenites are attractive and unusually large. Most molybdenite forms frozen in quartz or other massive material, but the blades at Silver Creek occur free-standing in vugs.

Hunt in the west cut and in the boulder-covered area between the cut and the creek. You will need sledges and other heavy tools to work the fresh rock or big boulders. We have found little material in the east cut, where loose rock makes climbing dangerous.



3. MT. HIGGINS

5. SEGELSON CREEK

3. MT. HIGGINS

MINERALS: AGATE, CHERT, AND FLINT (in thundereggs); SCENIC RHYOLITE

This is an area of exceedingly abundant thundereggs. Most are solidly embedded in rhyolite. Most (about 80 percent) have a center of grey flint. Some have centers of quartz crystals, and a few are moss agate-filled. Groups of intergrown "eggs" are common. If you hunt the roadcuts, bring hard-rock tools and be prepared to work. Thundereggs can still be found loose in the soil of the clear cuts, particularly atop the hill, but you will probably get more by working the roadcuts.

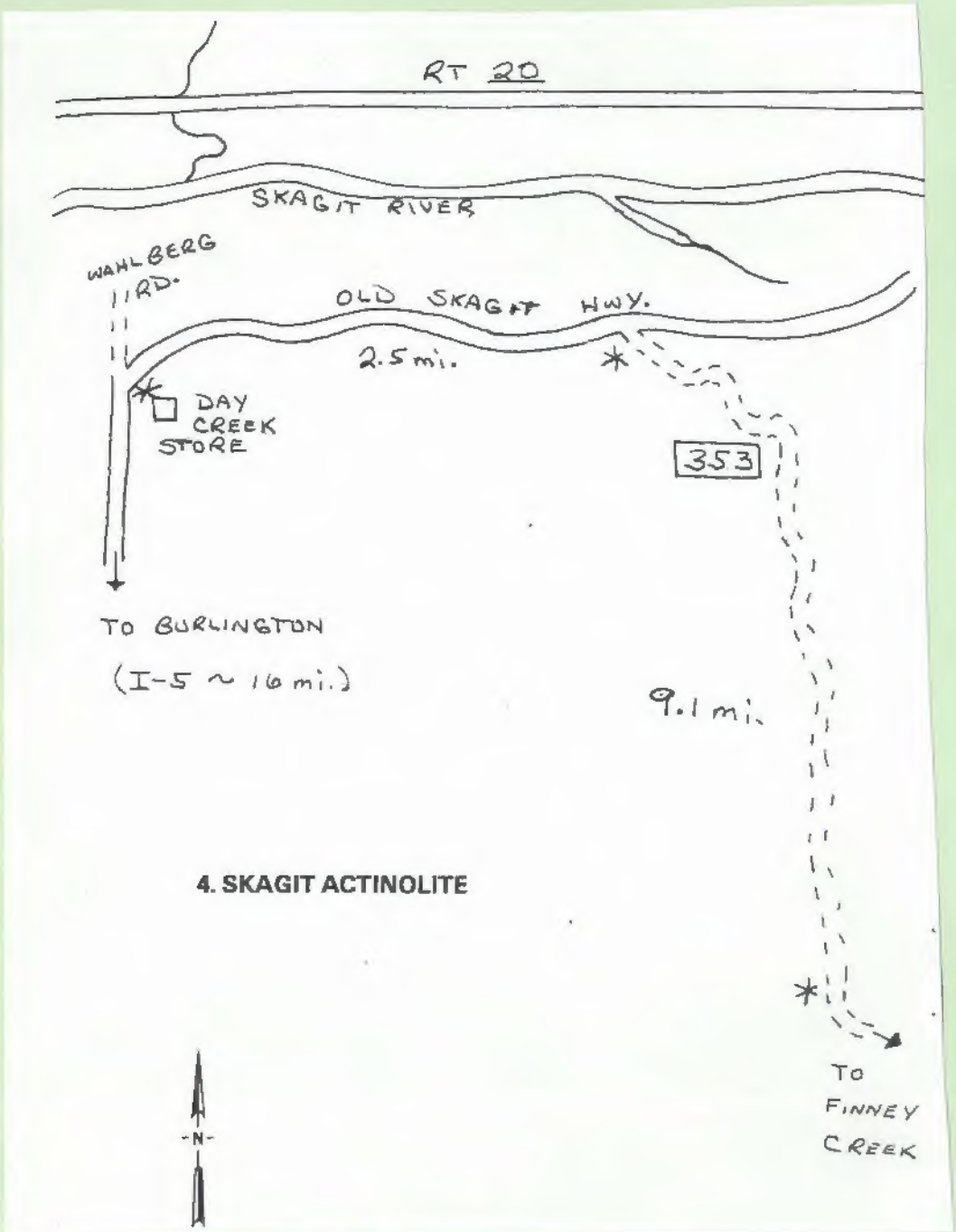
The scenic rhyolite resembles the Utah sandstone which is cut for rock pictures. It has bands and swirls of red, brown, yellow, and orange on a beige background. Most is too porous to take a polish, athough it is quite hard.

5. SEGELSON CREEK

MINERALS: AGATE, QUARTZ CRYSTALS, CALCITE (in geodes)

The geodes at Segelson Creek are similar to the ones found at Frost Mountain (locality #14, Vol. II): drusy white or pale amethyst quartz coating the inside of agate geodes and seams. Most are thin-walled. The small flat seam sections are ideal for jewelry. The road-cuts had abundant quartz seams showing in them when we were there in July, 1977. The area immediately above this cut was being logged at the time and so was inaccessible. A conversation we had at the time with a logger suggested a good possibility that additional material might be found in the new higher road cuts produced by that logging.

You will need small sledges, gads and bars to remove the agate seams from the fractured rock. Please do not leave rock in the road.

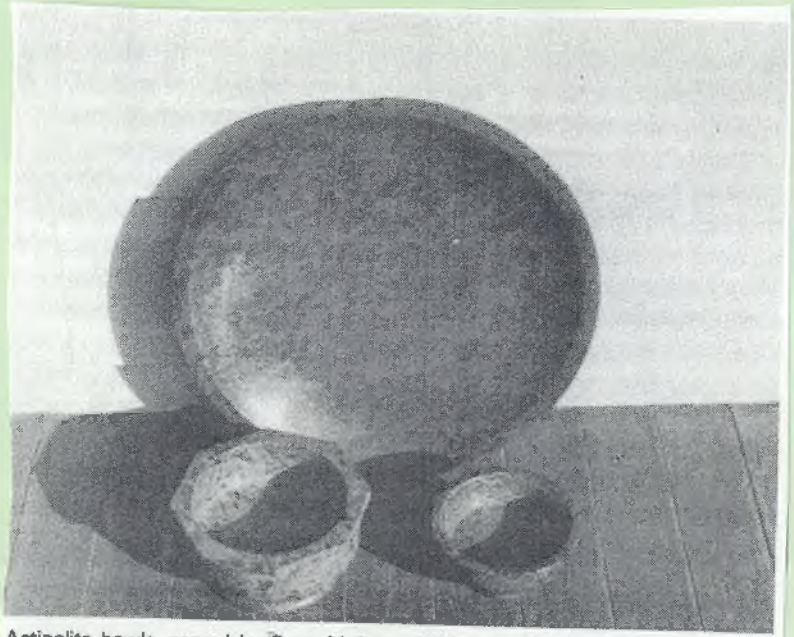


4. SKAGIT ACTINOLITE

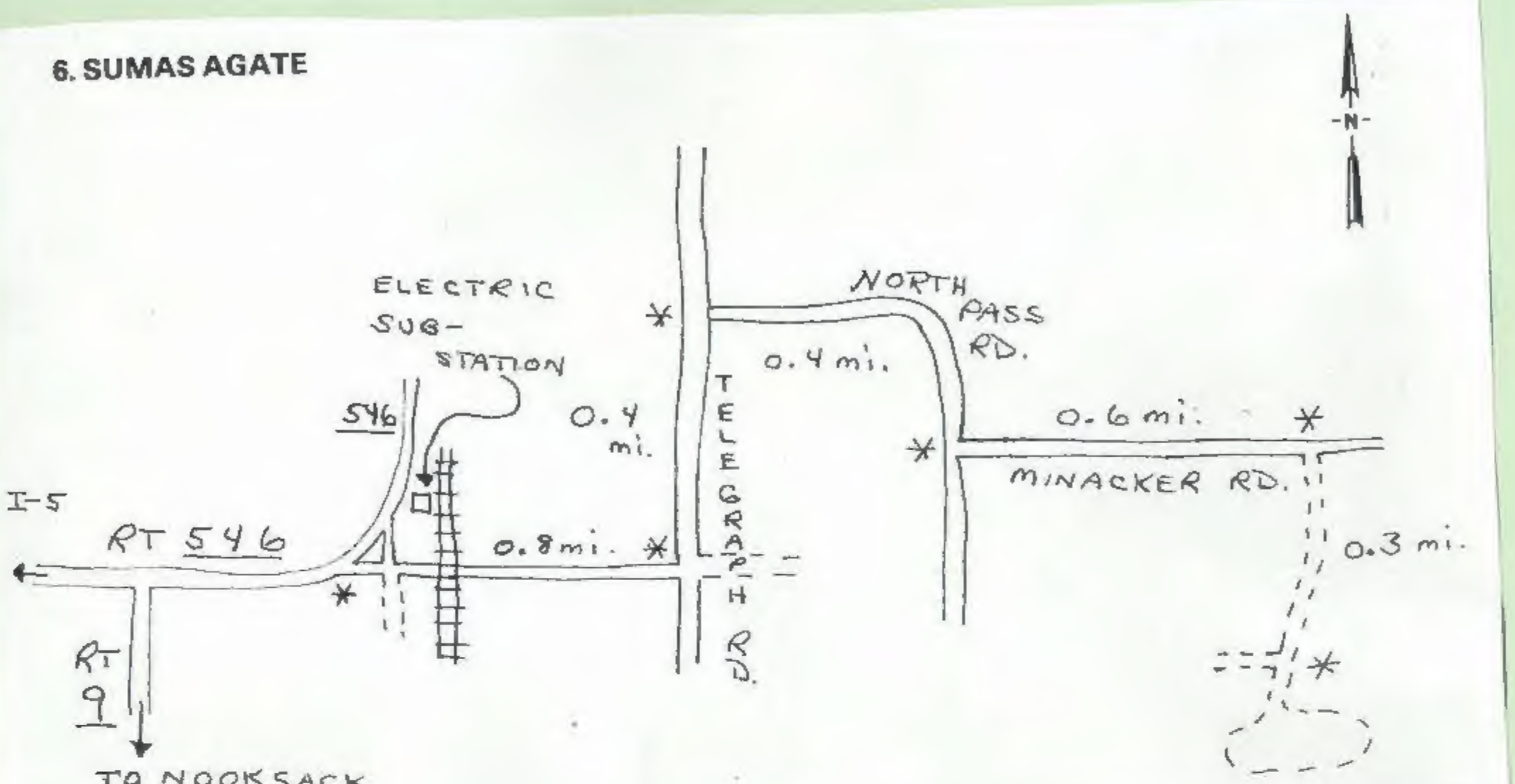
MINERALS: SERPENTINIZED ACTINOLITE

This small area produces striking material for carving and cabochons. The material is basically a dark green serpentine containing lighter grey-green inclusions of radiating actinolite. In some pieces the actinolite is abundant enough to produce chatoyancy in a properly oriented stone. The serpentine is soft; we have found diamond polishing quite satisfactory for it.

The locality was blasted when the road was built. Work carefully with a bar and you will be able to extract loose pieces without having to do additional damage to them. Park well off the road as logging trucks often go whizzing by.



Actinolite bowls, carved by Dave Molsee of Arlington, from material collected at locality #4.

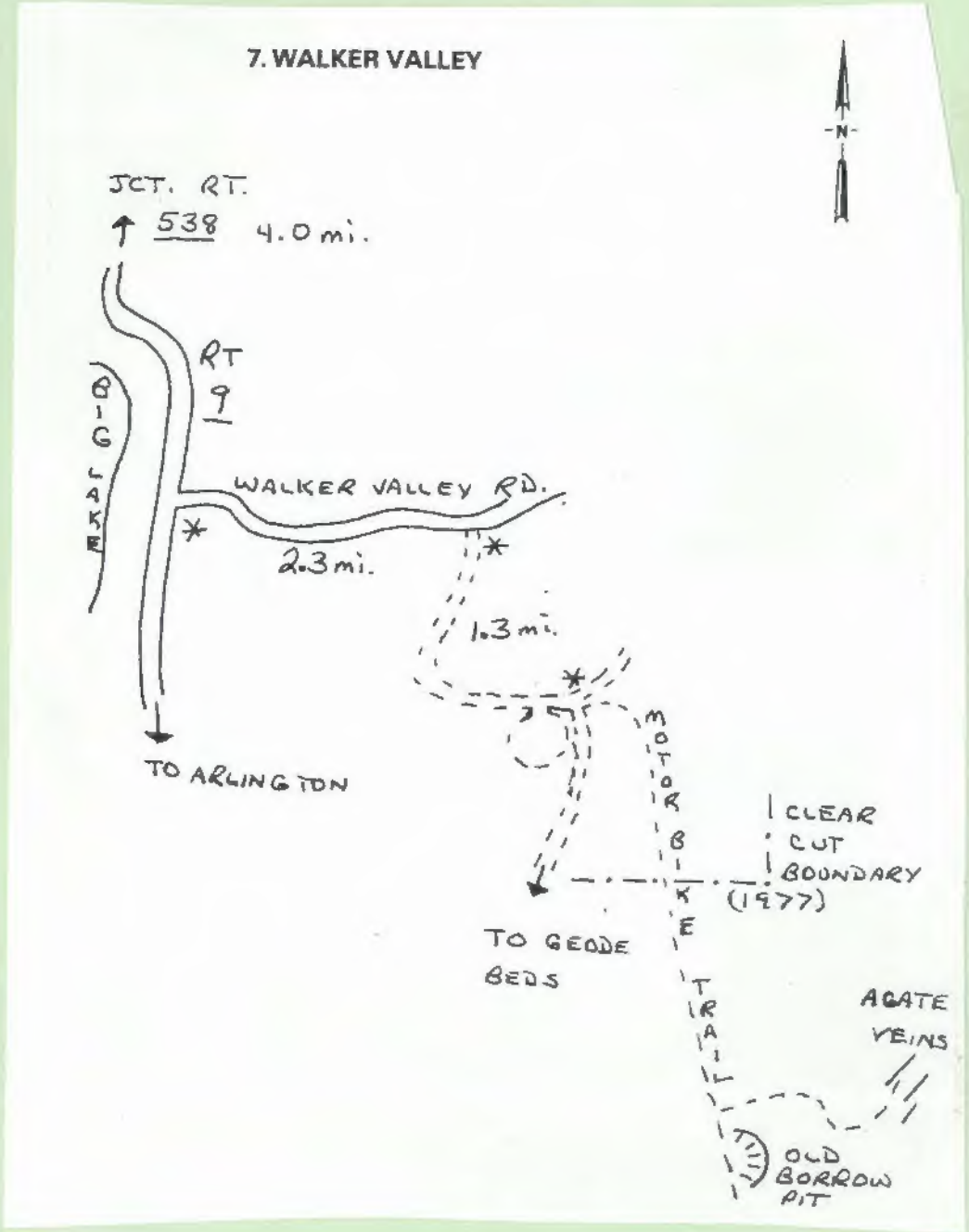


6. SUMAS AGATE

MINERALS: AGATE, QUARTZ CRYSTALS

The Sumas agates formed in the only basalt occurence in this part of the state. They range from pea- to football-size, are predominantly blue-grey, and are finely banded. The hill is covered with vegetation; very little digging has been done here in the past. We found two agate nodules in the exposed rock at the base of the hill and dug one geode from the soil further up the hill. It appears that agates can be found everywhere on this small knob. We did considerable hiking over the mountain and found no additional evidence of agates.

This land is privately owned; we understand that it is held by an investment company for speculative purposes. We were informed by neighbors and local club members that collecting has been and is permitted. Please clean up after yourselves so that this policy will continue.



7. WALKER VALLEY

MINERALS: AGATE, DRUSY QUARTZ CRYSTALS

"Walker Valley!" you say, wondering if this is the same Walker Valley we described in Volume I and at which you have collected for years. Well, it is and it isn't.

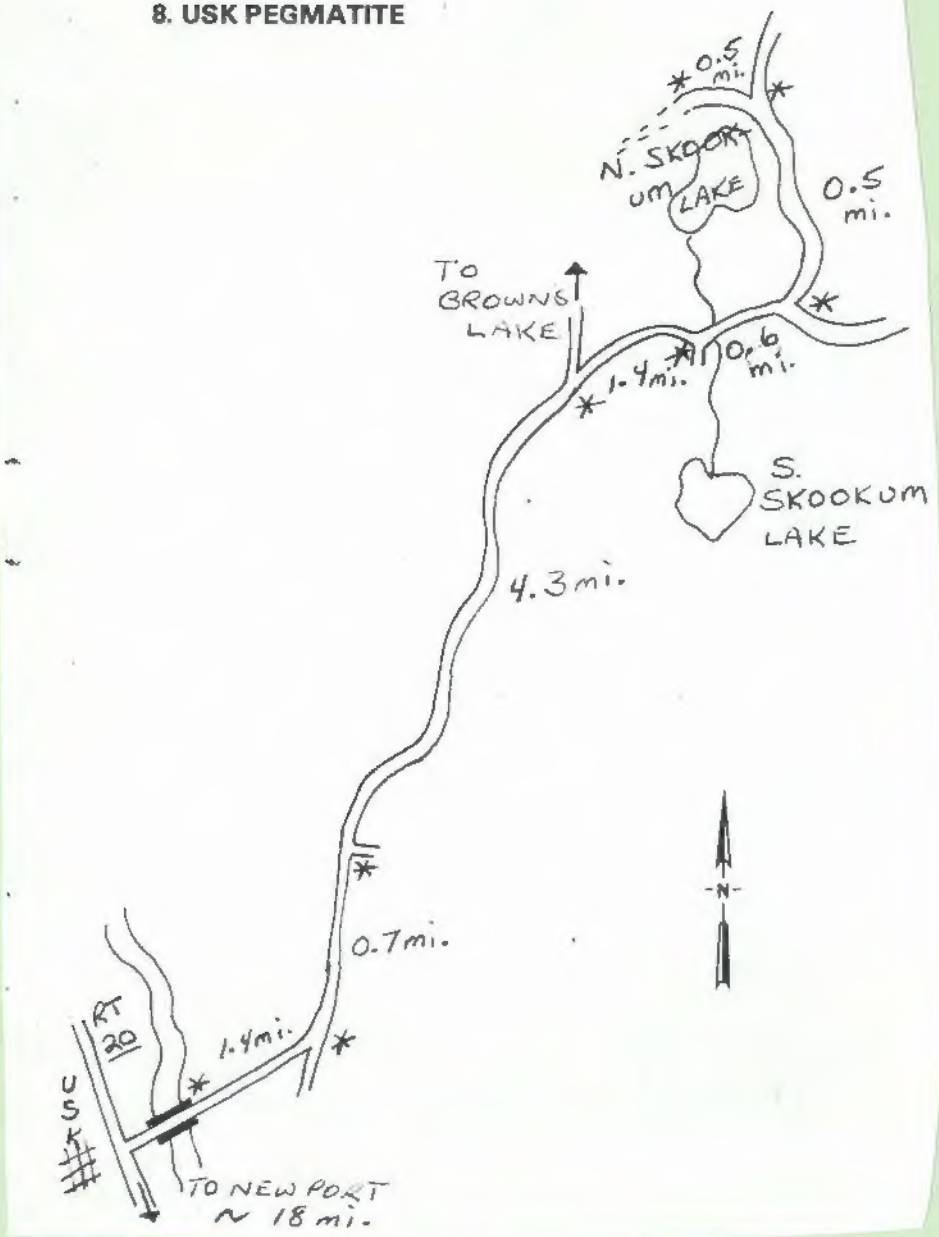
About a year ago a friend of ours was dismayed to find several dozen collectors at the geode diggings and took a walk in the woods instead of digging. He found an area of abundant agate seams. The agate is light blue with tan to brown-red breccia fragments and plumes within it. We have cut a number of cabochons from it and have been quite pleased with the results. Some of the darkest brown breccia fragments tend to undercut.

The trail from the motorbike path to the locality is well-marked by orange spray paint on the trees. The agate seams are exposed among tree roots. The surface rock is fairly soft and as a result the first foot or so of seam is easy to extract, but after that you will encounter typical hard basalt requiring heavy tools.

If you wish to do a bit of prospecting, walk over the hill to a small canyon about one quarter of a mile northeast of the agate seams. We found several chunks of agate float in this canyon, so there must be additional seams in the area.

This entire area is under lease to the Northwest Mineral Council, which has preserved the area and kept it open to rockhounds. No commercial exploitation of these deposits is permitted. Other rules and information are posted at the geode diggings.

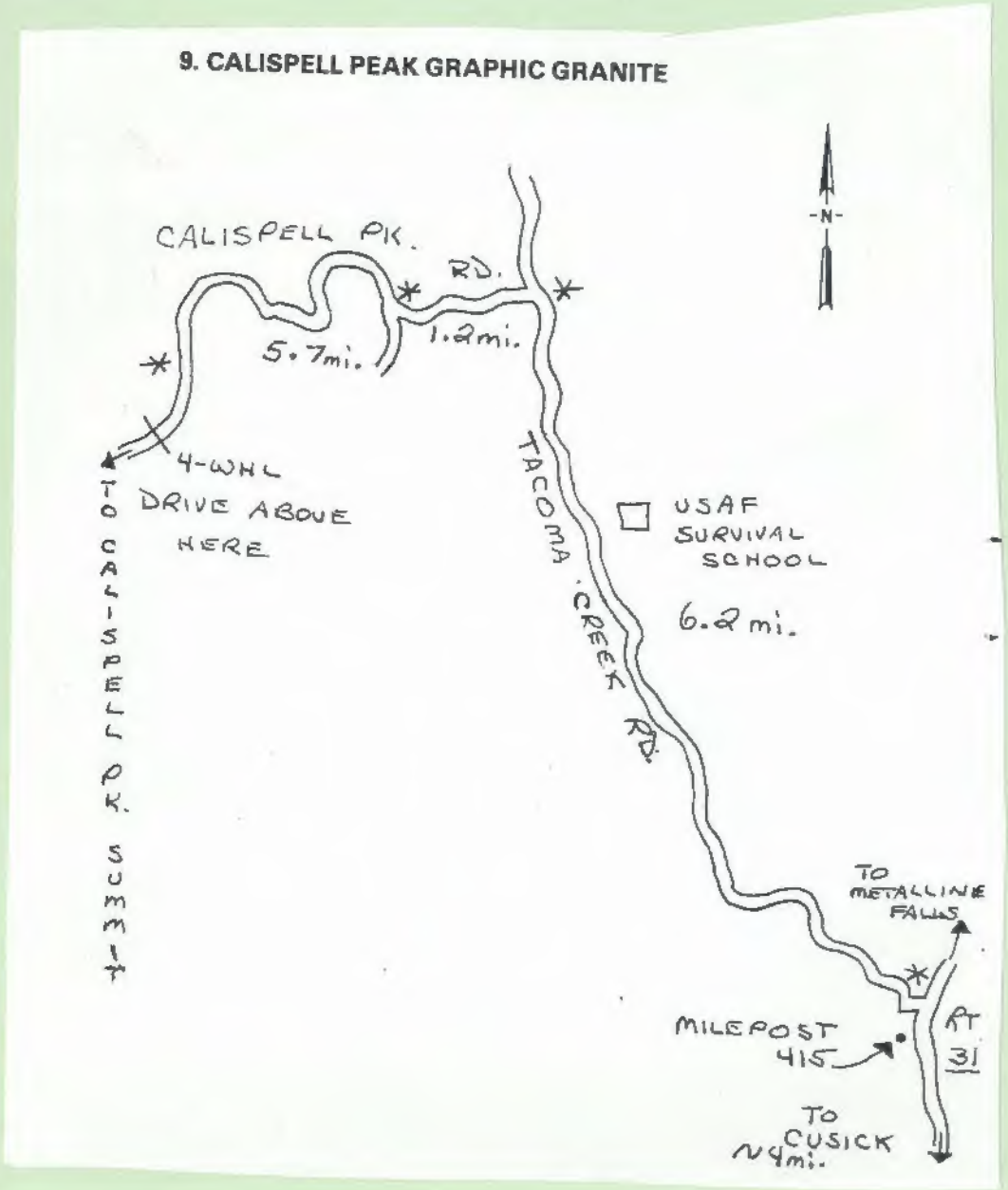
8. USK PEGMATITE



8. USK PEGMATITE

MINERALS: PLUMOSE MUSCOVITE, QUARTZ, FELDSPAR, beryl

We had never seen plumose muscovite before visiting this locality. A pegmatite dike is exposed over an area approximately 20 feet wide by 50 feet long. Several years ago, someone tried to extract the plumose muscovite for sale as mineral specimens. Apparently only one zone of the pegmatite produces plumes, and that zone runs directly beneath the road. Relocating the road proved to be too much of a problem, so the mining effort failed and the pit was refilled. About ten percent of the fill in the pit is plumose muscovite. Hunt in the pit and the adjacent wall (do not undermine the road!). You will need hammers and chisels.



9. CALISPELL PEAK GRAPHIC GRANITE

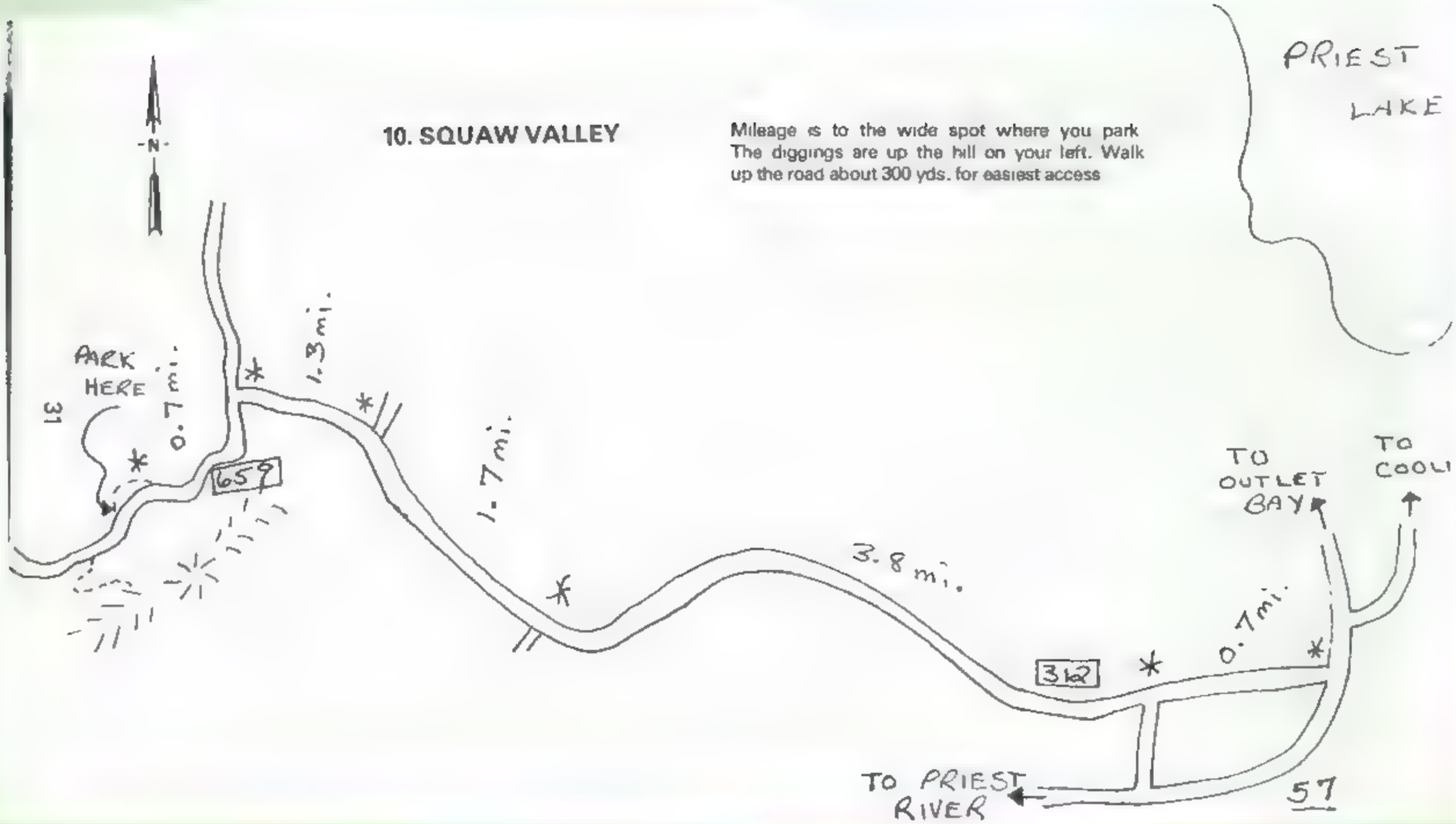
MINERALS: QUARTZ, FELDSPAR, MICA, BERYL

"Graphic granite" is a term applied to an intergrowth of quartz and feldspar which commonly occurs in pegmatite dikes. The name comes from the pattern formed by this intergrowth which resembles hieroglyphics.

While we have visited many pegmatite dikes in Washington in search of gem materials, Calispell Peak is the first area in which we have found abundant graphic granite. The color is light brown (smoky quartz) and off-white (feldspar). It makes an attractive decorative rock for bookends, spheres, fireplaces, etc. The pattern is most striking in large pieces, so cabochons are seldom cut from this material.

Our selection of this area rather than any other on Calispell Peak was both arbitrary and necessary. Arbitrary, because while Calispell must have several hundred pegmatite dikes exposed on it, this particular one has a wide exposure of graphic showing; and necessary, because past it the road quickly became too rough for our VW.

Bring a heavy sledge and pry bar to move boulders. Most of the graphic is loose in the soil, but you will have to break large pieces down to handle them.



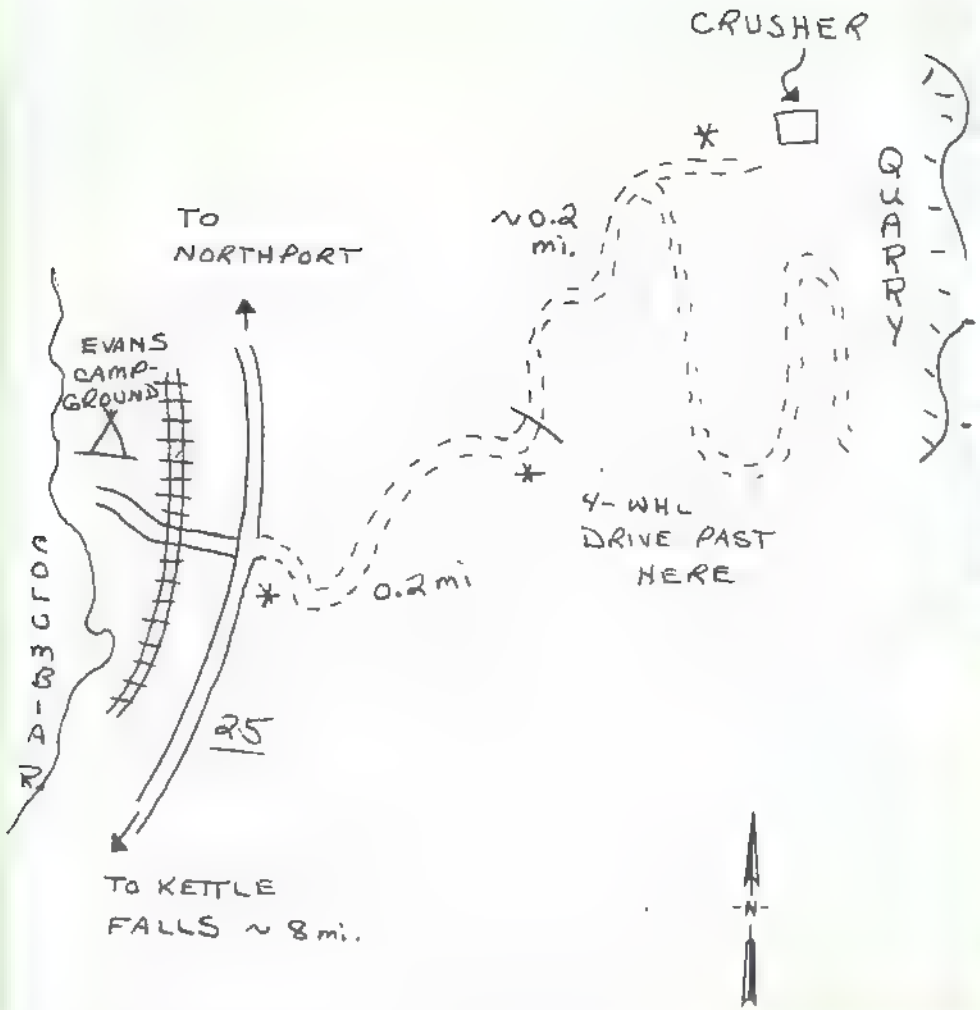
10. SQUAW VALLEY

MINERALS: QUARTZ CRYSTALS

We have visited this locality only once. We stopped by on a trip to Priest Lake, Idaho; hence the map is drawn from the Idaho side. This is by far the easiest access — we had previously tried to find the area from Usk, on the Washington side, and got hopelessly lost. If you attempt the route from Usk, get a Kaniksu National Forest map and pay close attention to mileage as the roads are poorly marked.

We arrived at the locality during a cloudburst and quickly found a hole under a large tree to protect us from the rain. We got soaked anyway, but we found 50 pounds of crystals in 20 minutes. The crystals are mostly large (over four inches) and are frequently broken and rehealed. Some of the crystals are a pale smokey color, but most that we found were milky and translucent.

The hill is inundated with holes — choose one and enlarge it or start your own. The rock is fractured massive quartz. A pick would be helpful, and you will definitely need a shovel, hammers, and gads. The area is probably a huge quartz vein with random pockets. Although we can't guarantee it, we hope you have as much luck as we did!



Evans Camp Quarry — Aragonite area

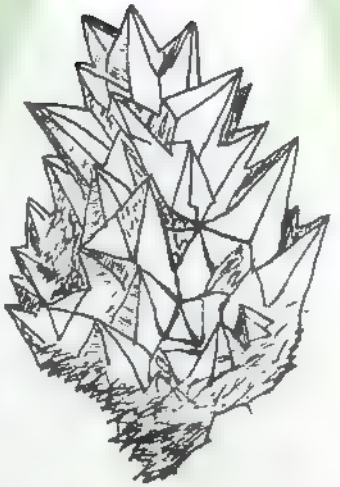


Fig. 2 Crystalline calcite stalactite, Evans Camp Quarry. X 2.

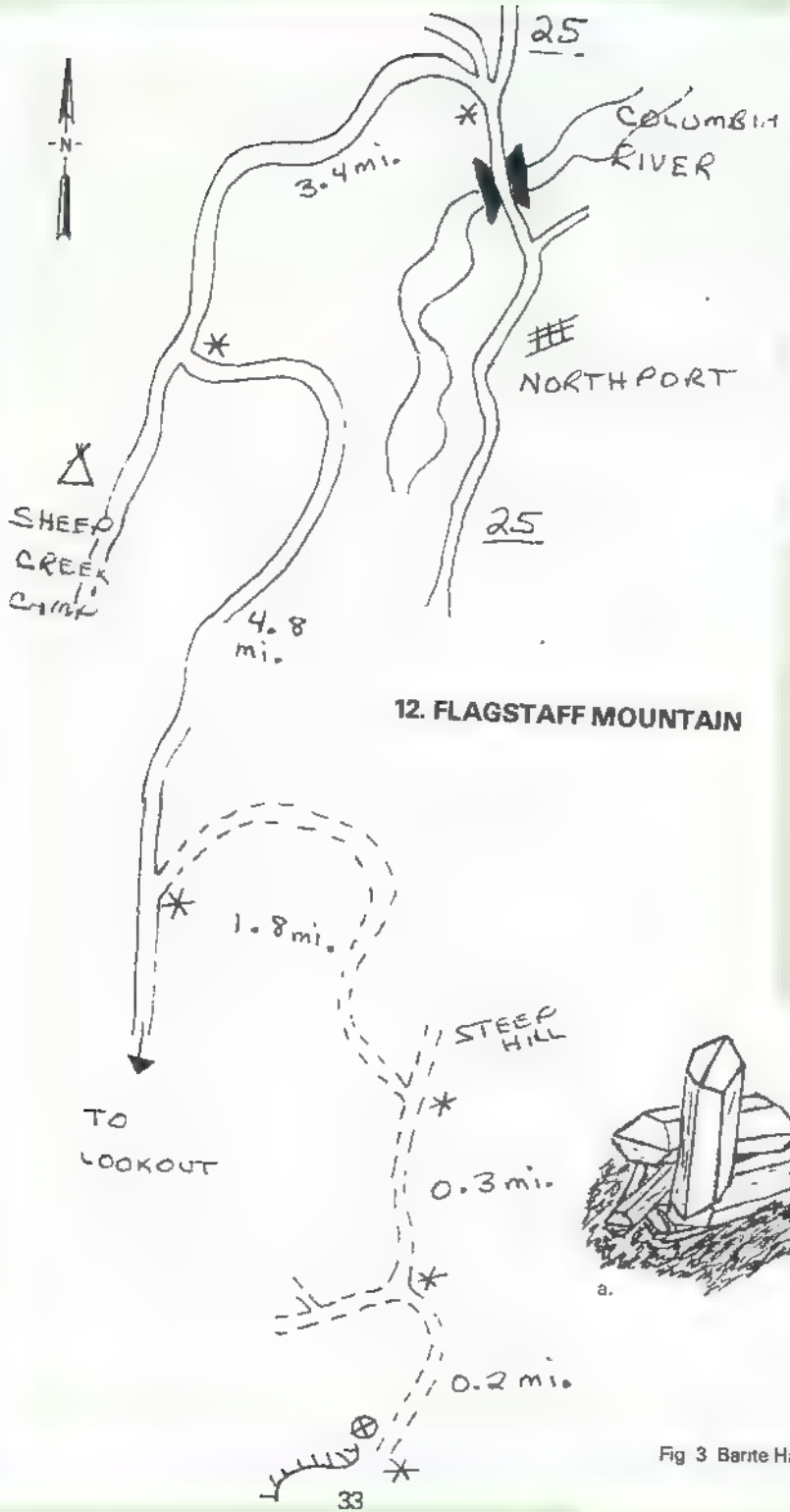
Evans Camp Quarry — caves are behind trees at center.

11. EVANS CAMP QUARRY

MINERALS: ARAGONITE, CALCITE

This locality is an abandoned limestone quarry. Two small caves are exposed in the walls of the quarry; both contain crystalline stalactites. *Fig. 2.* There are also several seams of radiating aragonite crystals in the vicinity of the caves. (CAUTION: The larger of the caves was inhabited by a family of skunks when we visited.)

The stalactites are small but make interesting specimens. Normally we would not condone removal of natural deposits from caves, but since these were exposed to the air by quarrying operations, they are being gradually destroyed by weathering. Bring small hammers and chisels for the stalactites, larger tools for the aragonite seams. A ladder would be helpful. Please collect carefully to avoid destroying the delicate stalactites.



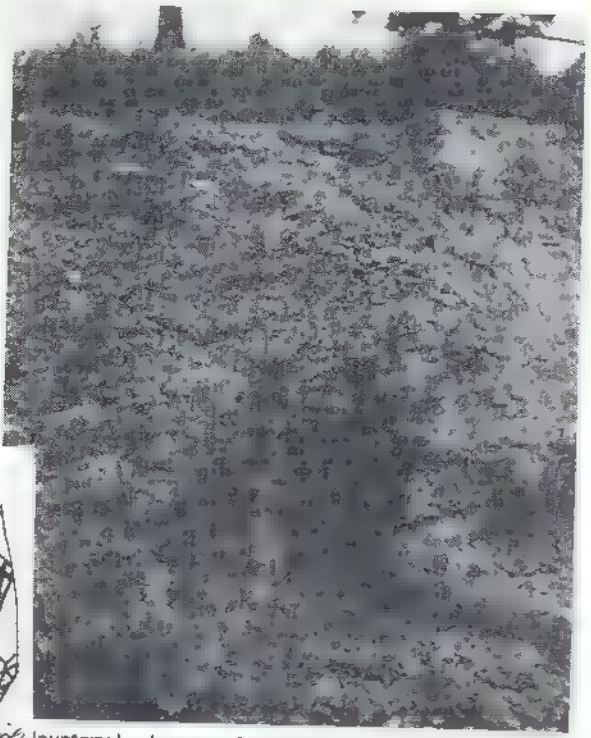
12. FLAGSTAFF MOUNTAIN

MINERALS: BARITE, CALCITE

This is the site of an old barite mine which was worked as an open cut. A fault zone within the cut has numerous cavities which produce barite crystals of several colors and habits. *Fig. 3.* We collected specimens of barite which were blue, brown, colorless, and yellow.

The road to the site is in poor condition, but we managed to rattle over it in a Volkswagen camper. The pit is on the ridge line of the major southeast spur of Flagstaff Mountain. There is an open shaft on the property, please watch children and pets.

Bring heavy tools and bars, the massive barite in which you will be working is soft but very resistant to breaking.



lountain: Looking east from the pit floor. Vuggy zone in foreground

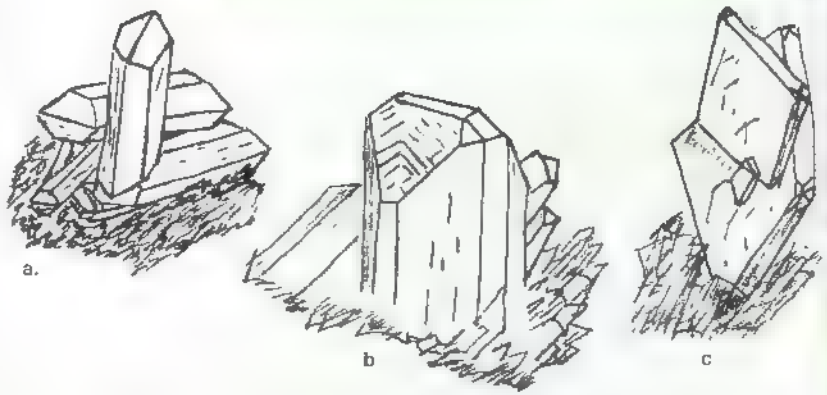
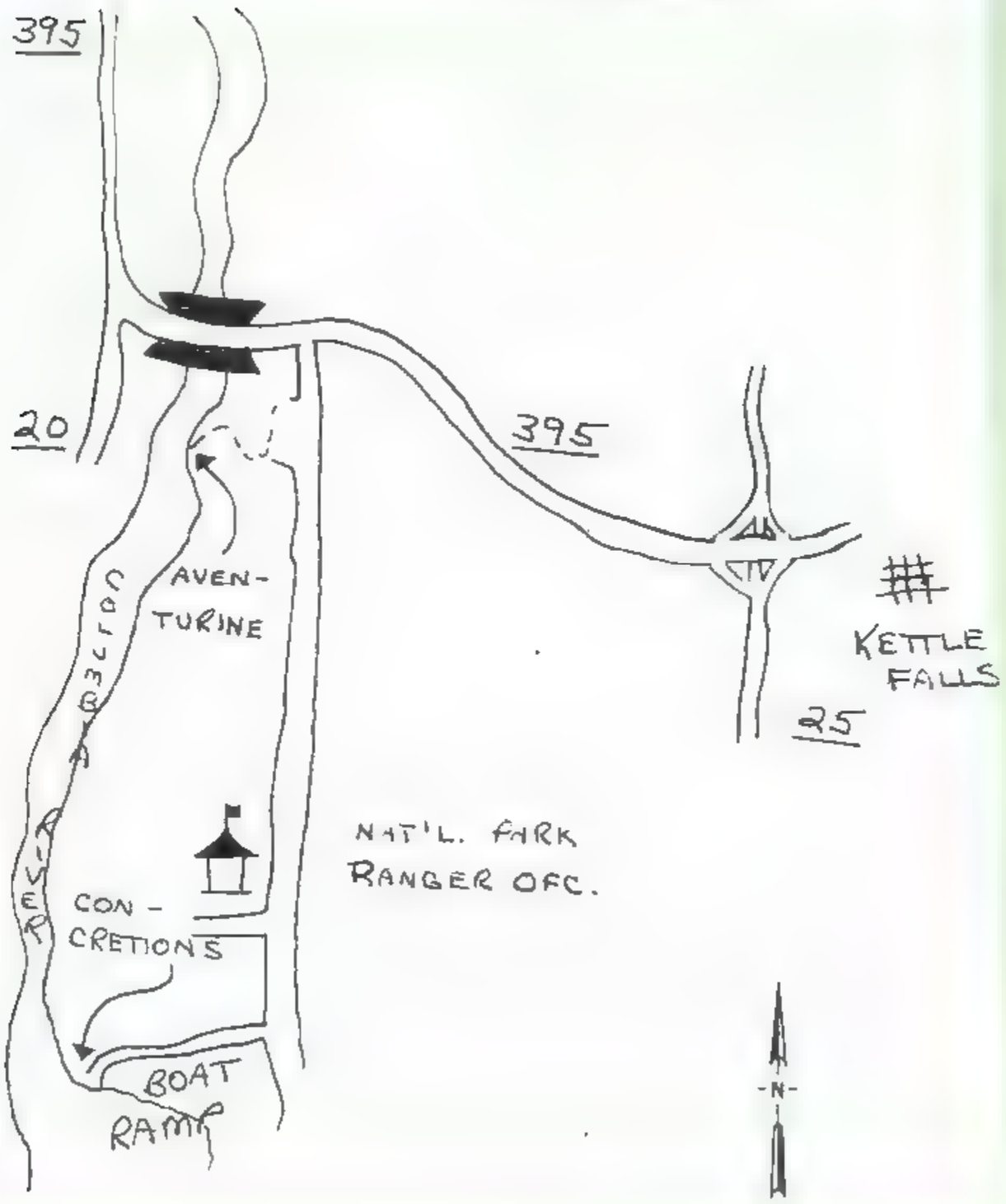


Fig 3 Barite Habits, Flagstaff Mt. a) pale blue prismatic crystals X .5
b) clear prismatic crystals X 1
c) yellow tabular crystals X 2.



13. KETTLE RIVER

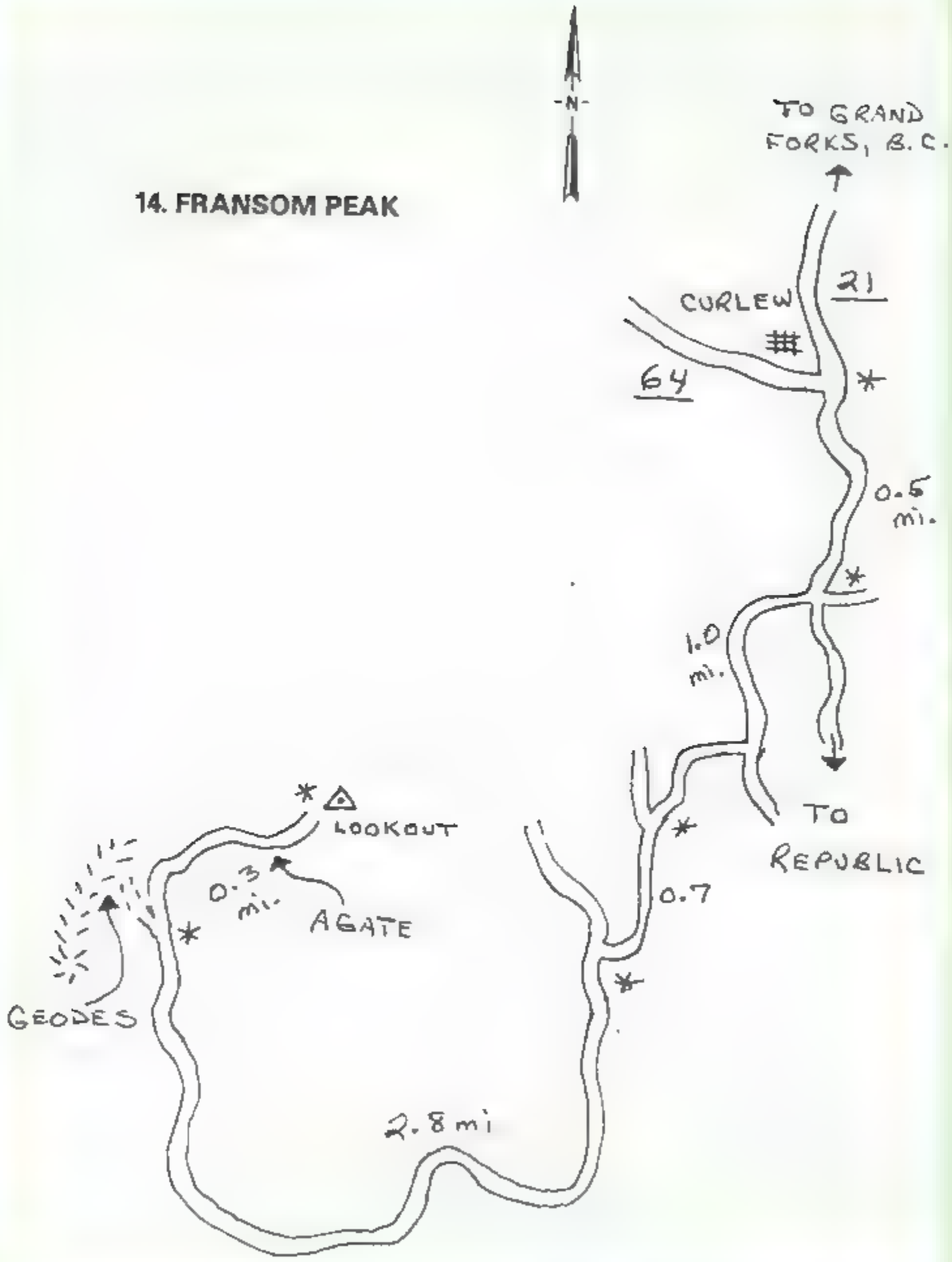
MINERALS: AVENTURINE, CLAY CONCRETIONS

The Kettle River drains an area underlain by metamorphic rocks. We have located several veins of aventurine in this area, but all are on private property so we cannot publish their locations. However, while looking for another locality along the river, we noticed that a fair percentage of the river rocks are aventurine. The area indicated on the map is a large concentration of rocks at the base of a steep bank. The climb down at this point is not recommended for small children.

We stopped at the Ranger office at the end of the access road shown on the map and saw a permanent display of clay concretions — commonly called "mud dogs" or "clay babies". The concretions are flat rocks of interesting rounded forms, frequently interconnected into groups. We have often seen these used by craftspeople in whimsical creations. The ranger and other local folks told us that the concretions are found abundantly in clay deposits, such as the one just south of the boat launch. There deposits are exposed only during periods of low water, usually late winter before the spring runoff begins.

The aventurine and other river rocks are exposed at normal river levels, and so may be collected at any season. We found adventure various shades of green, brown, and pink.

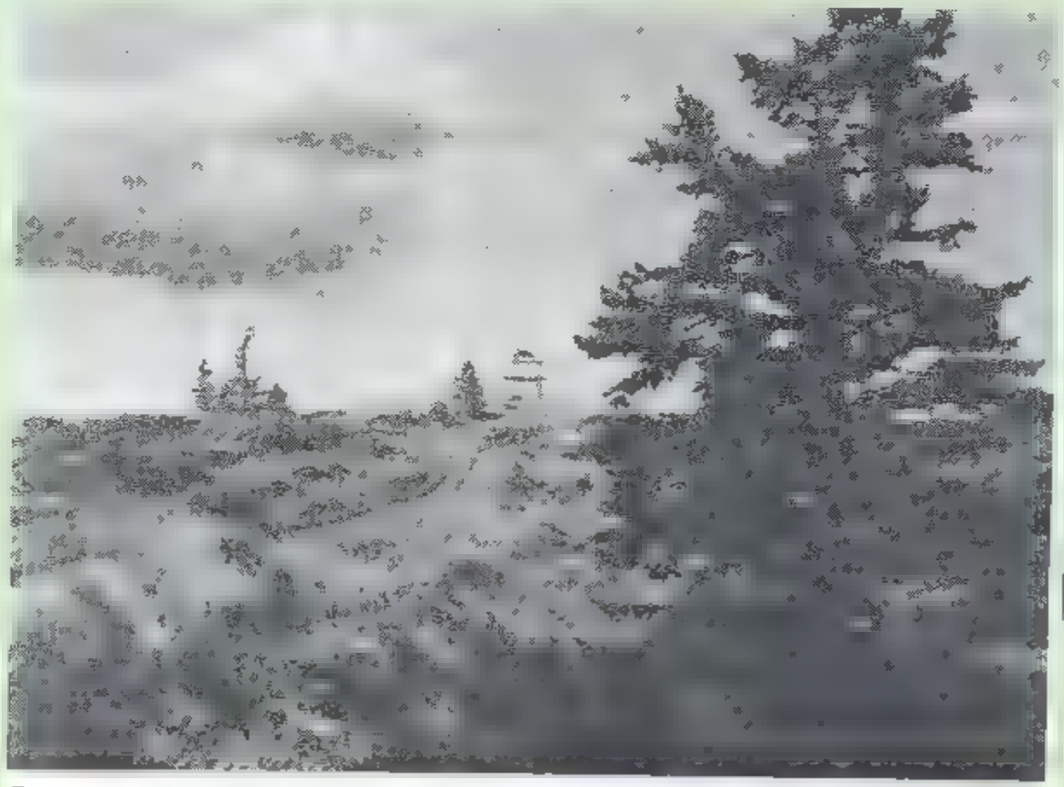
14. FRANSOM PEAK



14. FRANSOM PEAK

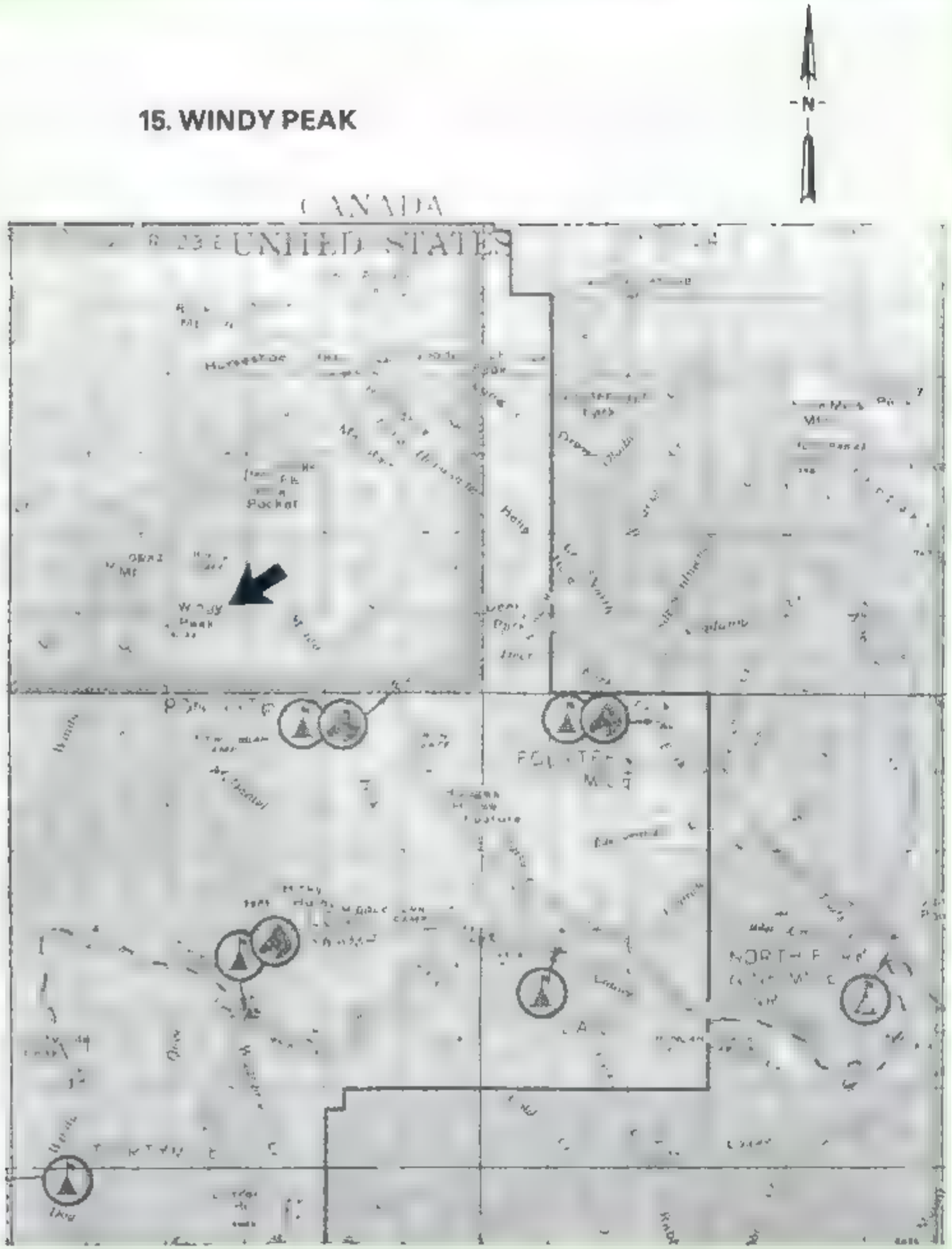
MINERALS: AGATE, QUARTZ CRYSTALS

We were told of this area by an acquaintance who called it "the new Walker Valley." It will take a lot of work at Fransom to justify this comparison. We found light blue agates, moss agates, tube agates, and quartz crystal geodes scattered over an area of about ten acres. We have seen two amethyst geodes which were taken out of Fransom with color and clarity as good as anything Walker Valley has produced. One of these geodes was the size of a basketball, the other smaller. We did not find any this good in a halfday field trip. We found two geodes wih drusy quartz crystals, one of which was amethystine. A large geode, about two feet across, was exposed in a cliff, but we did not take it. We also found about three pounds of agates. Since the entire top of the mountain is basalt, we expect that further search will reveal more productive areas. The only area in which we found nothing at all of interest was directly beneath the lookout.



Fransom Peak: Looking east along the road to the lookout. Agate-bearing outcrop in foreground.

15. WINDY PEAK



15. WINDY PEAK

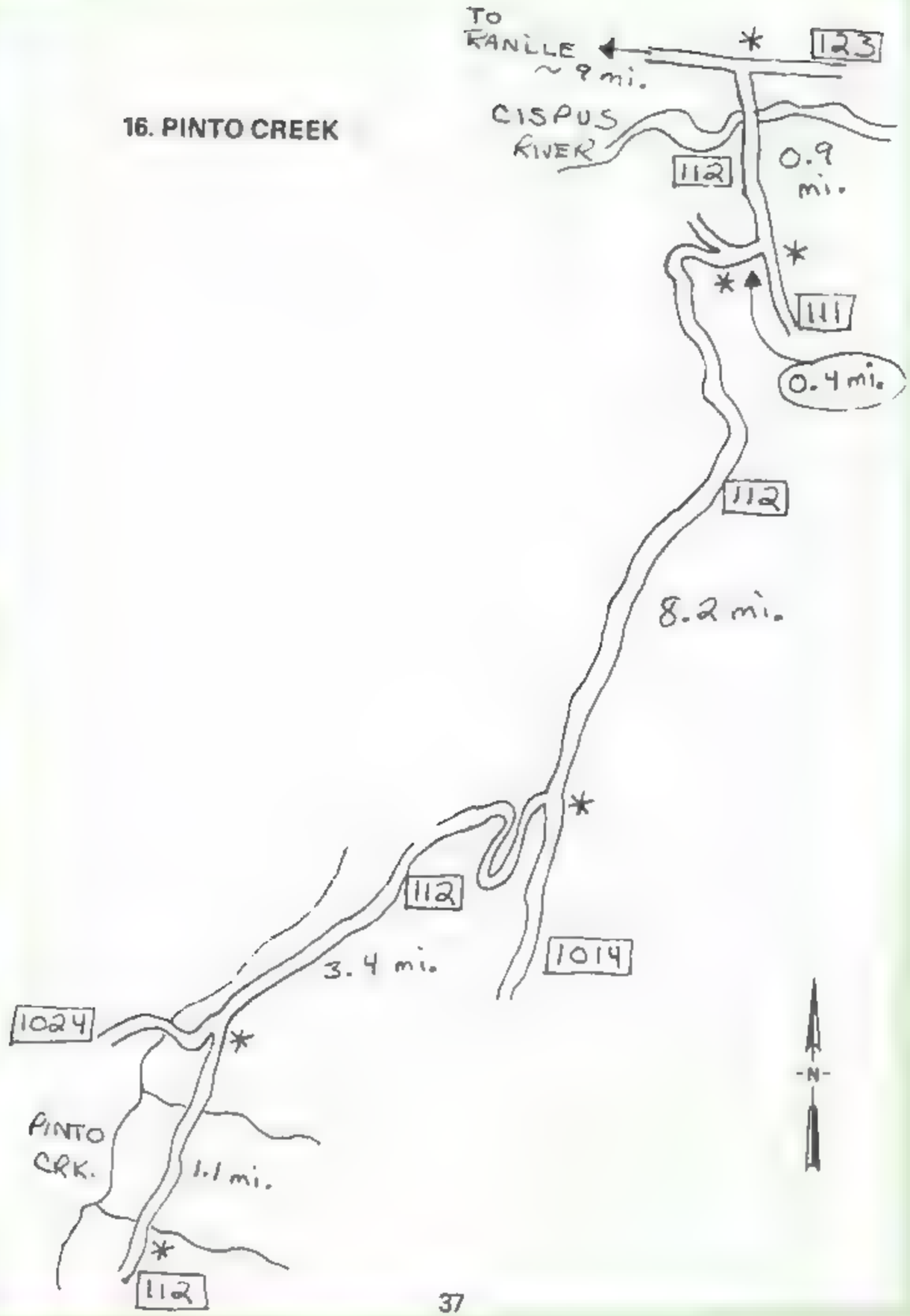
MINERALS: QUARTZ CRYSTALS, FELDSPAR, MICA, Beryl, topaz

Windy Peak is an area locale. There is no specific place in which to hunt. Instead, we are telling you of an area that can be reached only by a long hike where we have found good quality mineral specimens. This is an area of granitic rocks, where occasional vugs are found containing crystals of the minerals listed. (NOTE: several readers have requested information of this sort. If the response to it is favorable, we will publish two additional area localities in Volume IV: one for jade and another for mineral specimens.)

Before you hike into this area, obtain a USGS topographic map of Horseshoe Basin quadrangle. Windy Peak is in the Pasayten Wilderness area and may be reached by 11 miles of trail from the Long Swamp campground, or by six miles of trail from the Iron Gate campground. Just northwest of Windy Peak is Topaz Mountain, which we did not have time to explore.

Check talus slopes and washes in the vicinity of Windy Peak for signs of massive quartz or quartz crystals. Follow any evidence you find to a bare rock outcrop to check for veins or cavities. If you are not familiar with prospecting of this sort, Sinkankas' *Prospecting for Gemstones and Minerals* will provide good background knowledge.

We averaged two productive vugs per person per day.



16. PINTO CREEK

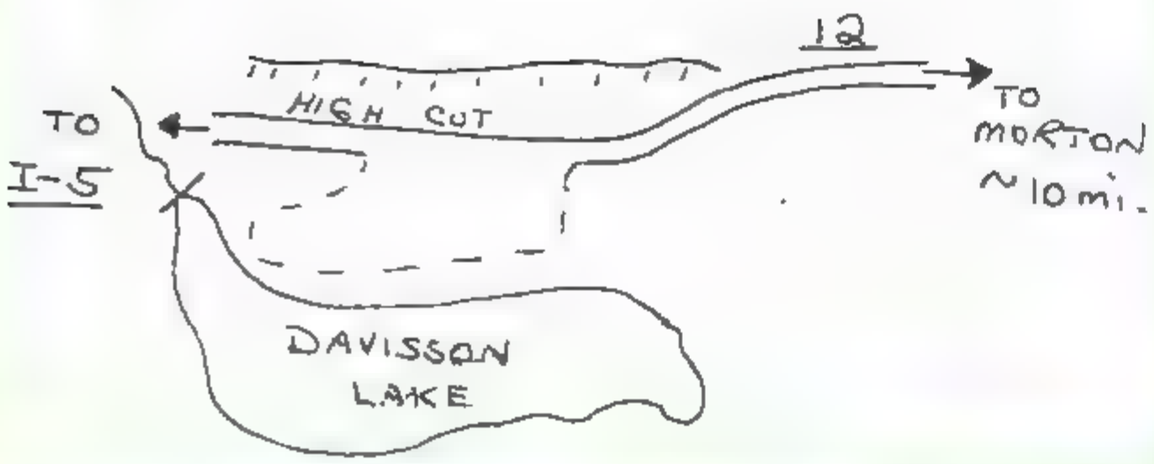
MINERALS: AGATE, JASPER

This is without a doubt the prettiest jasper we have found in Washington. The base color is bright orange to deep red. Occasional pockets in it are filled with light blue fortification agate, or green and gold moss agate. The jasper occurs in a lens about 50 feet long and from four inches to two feet wide which outcrops less than 50 feet from the road.

Now for the bad news: plan to get wet. The jasper lens is exposed in the bed of a small creek. To extract large pieces of jasper you must chisel away the hard rock which encases it, then break through the vein itself. Almost all of this work must be done under a couple of inches of water. We were here during the '77 drought, but the little creek was still running. We are sure you will find the material worth getting wet for. There are quite a few loose jasper chunks in the stream, but we would not expect that situation to last for long. It did not appear that anyone had hunted here before us.

We also found jasper chunks in several other small streams nearby, indication that additional undiscovered veins are present.

17. MOSSY ROCK DAM



Mossyrock Dam: roadcut as seen from south side of Hwy. 12.

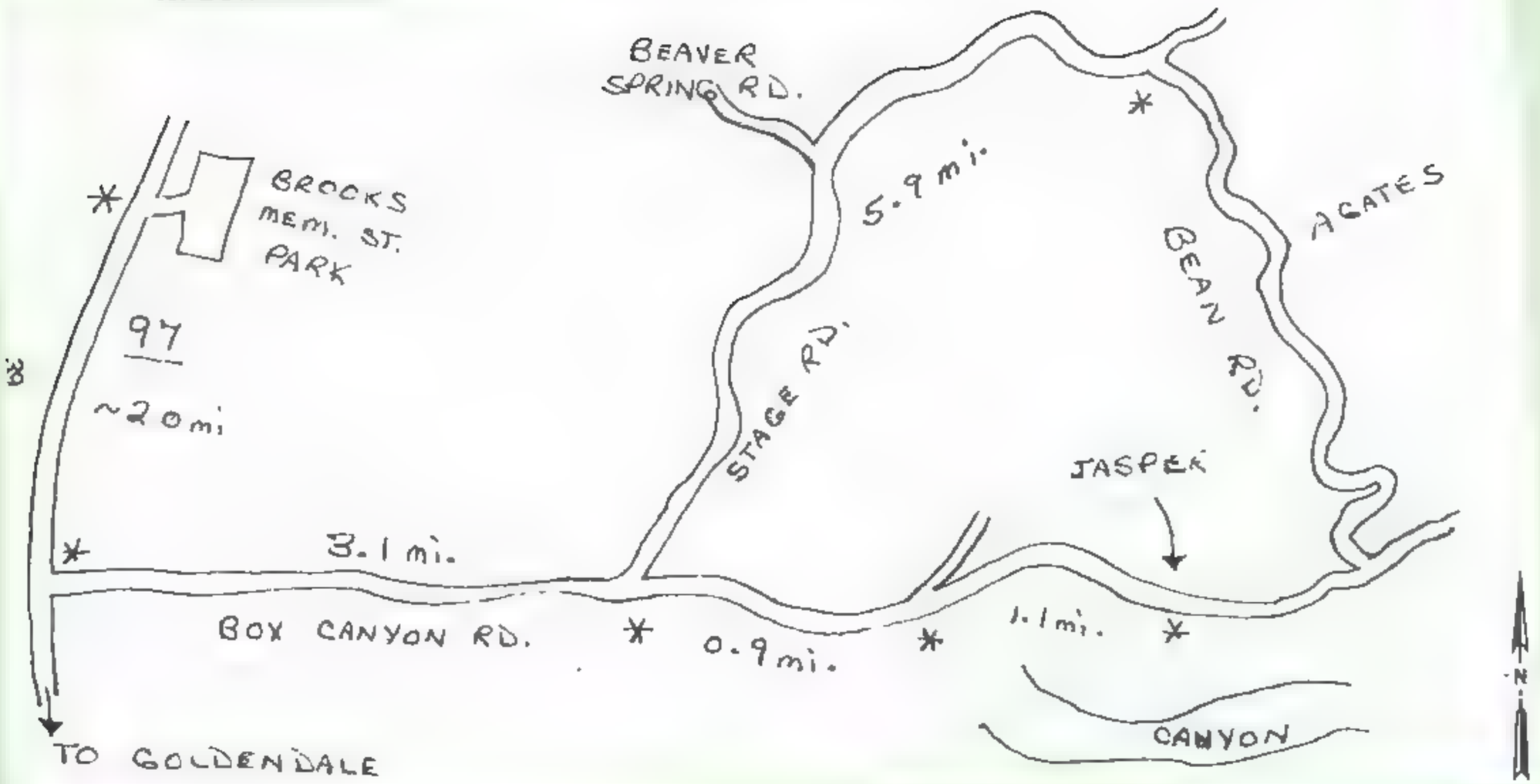
17. MOSSY ROCK DAM

MINERALS: AGATE, CALCITE, QUARTZ CRYSTALS

This is the easiest locality to find that we have ever published. The area is a cliff directly across Highway 12 from the parking lot overlooking Mossy Rock Dam and Davison Lake. The cliff has agate seams and nodules in it. We found a crystal-lined geode with a thin rim of blue agate as fine as Ellensburg blue (see Locality #16, Volume II). We must have driven by this cliff 50 times before we just happened to stop across the road and noticed all the interesting seams. It looks as if no one else has stopped either (although lots of people have thrown litter), because there is a lot of agate just lying beside the road.

You will need a medium sledge to break the talus and really heavy equipment if you want to work anything out of the cliff. If you work the cliff, please be careful: we would like to have you around long enough to buy a copy of Volume IV! We wear hard hats anytime we work next to cliffs. All that talus at the base of a cliff didn't grow there, it fell from above!

This is a small area on a busy highway, unsuitable for groups, children, or all-day trips.



18. GOLDENDALE

MINERALS: AGATE, JASPER

The map for this area covers two localities: one for agate and one for jasper. This is NOT the prettiest jasper we have found in Washington — actually, its downright ugly. But its unusual form makes it useful to the lapidary. It occurs in nodules with a bumpy to pitted surface which, when polished, looks very similar to the agatized "sea-foam" coral from Utah currently on the market at high prices. The color is brick-red. We found none with a hint of any other color, but some of the larger nodules become paler as you grind farther from the surface.

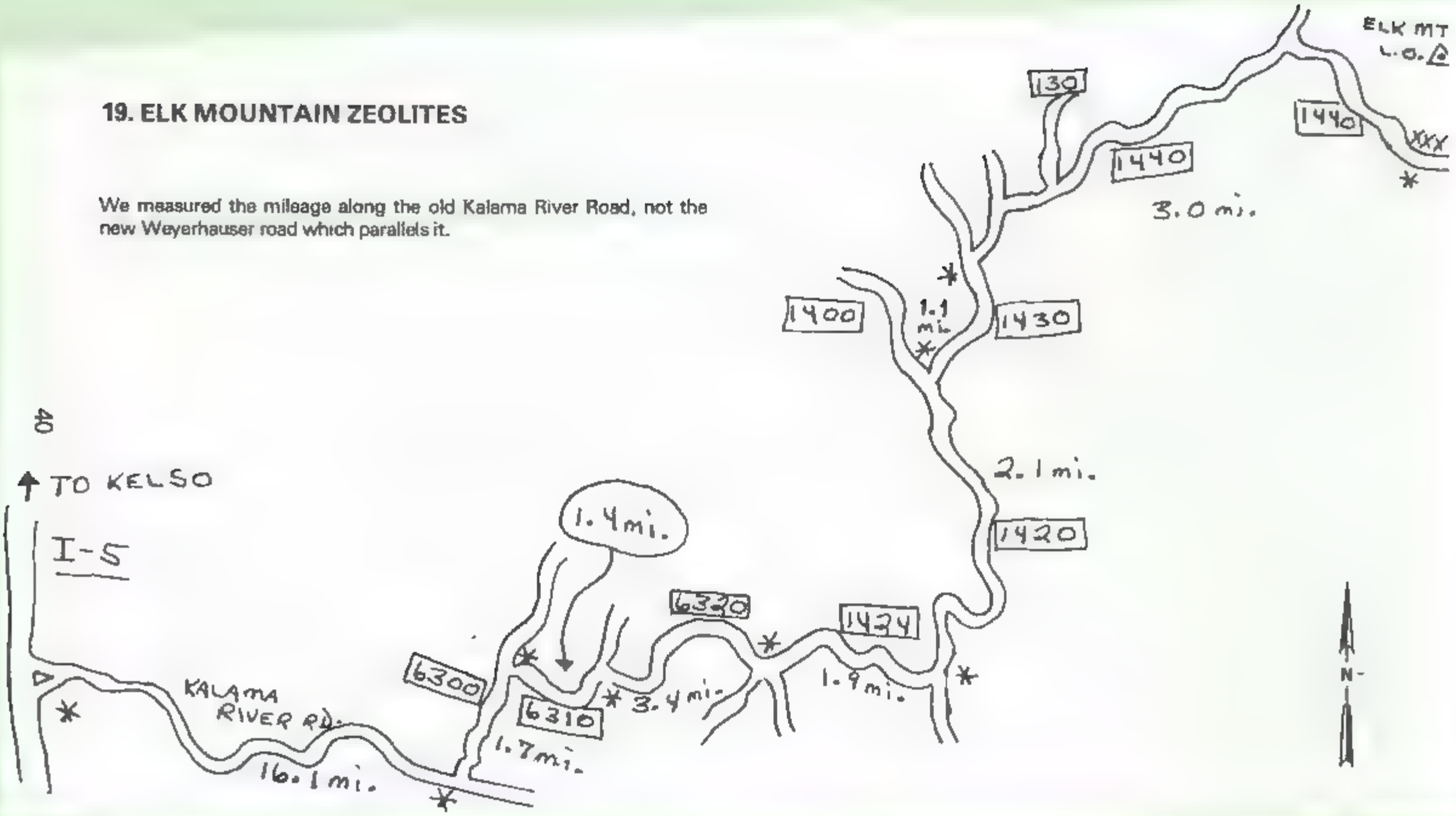
The jasper is weathering from a thin basalt layer which outcrops on both sides of the road at the point marked on the map. We saw ample small nodules just lying on the ground. The small nodules are best for simulation of "sea-foam" coral. We also dug about a pound of jasper from a short trench at the crest of the hill.

The second locality is the Bean Road agate deposit. The Bean Road itself and the roads leading to it are rough but accessible in a VW. The Bean Road continues south over the mountains and connects with the road the jasper is found on, but this route would have required a four-wheel-drive vehicle when we were there.

The Bean Road agates are small, bean- to walnut-size fortification nodules in shades of red to yellow. We never did find a rock exposure showing agates, but picked a tumblerful from the soil at half a dozen places along the Bean Road.

19. ELK MOUNTAIN ZEOLITES

We measured the mileage along the old Kalama River Road, not the new Weyerhauser road which parallels it.



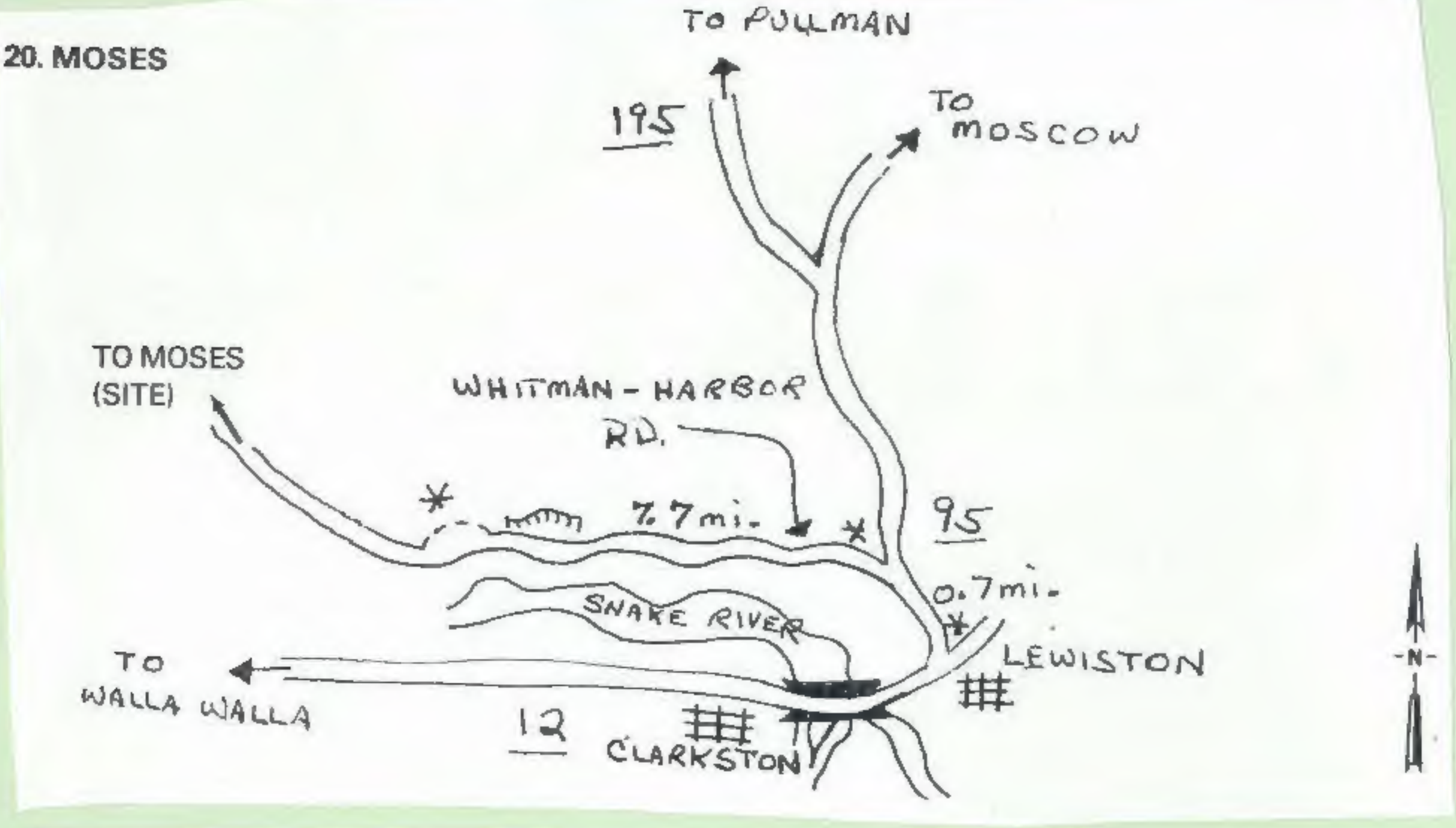
19. ELK MOUNTAIN ZEOLITES

MINERALS: ANALCIME, CALCITE, SCOLECITE, Chabazite, stilbite

This locality is a roadcut along Weyerhauser Road #1440. The zeolites occur in small geodes which are so plentiful that the whole rock surface looks polka-dotted. The scolecite crystals are esppecially beautiful — shiny needles radiating inward from the geode walls. You will need hammers and chisels; a small bar might be helpful. The basalt is well-fractured, and there are numerous cavity-filled boulders loose already. The geodes average one inch in diameter.

Many of the roadcuts on the west side of Elk Mountain show small amounts of zeolites. Roadbuilding in the area should be watched closely for additional zeolite exposures.

20. MOSES



20. MOSES

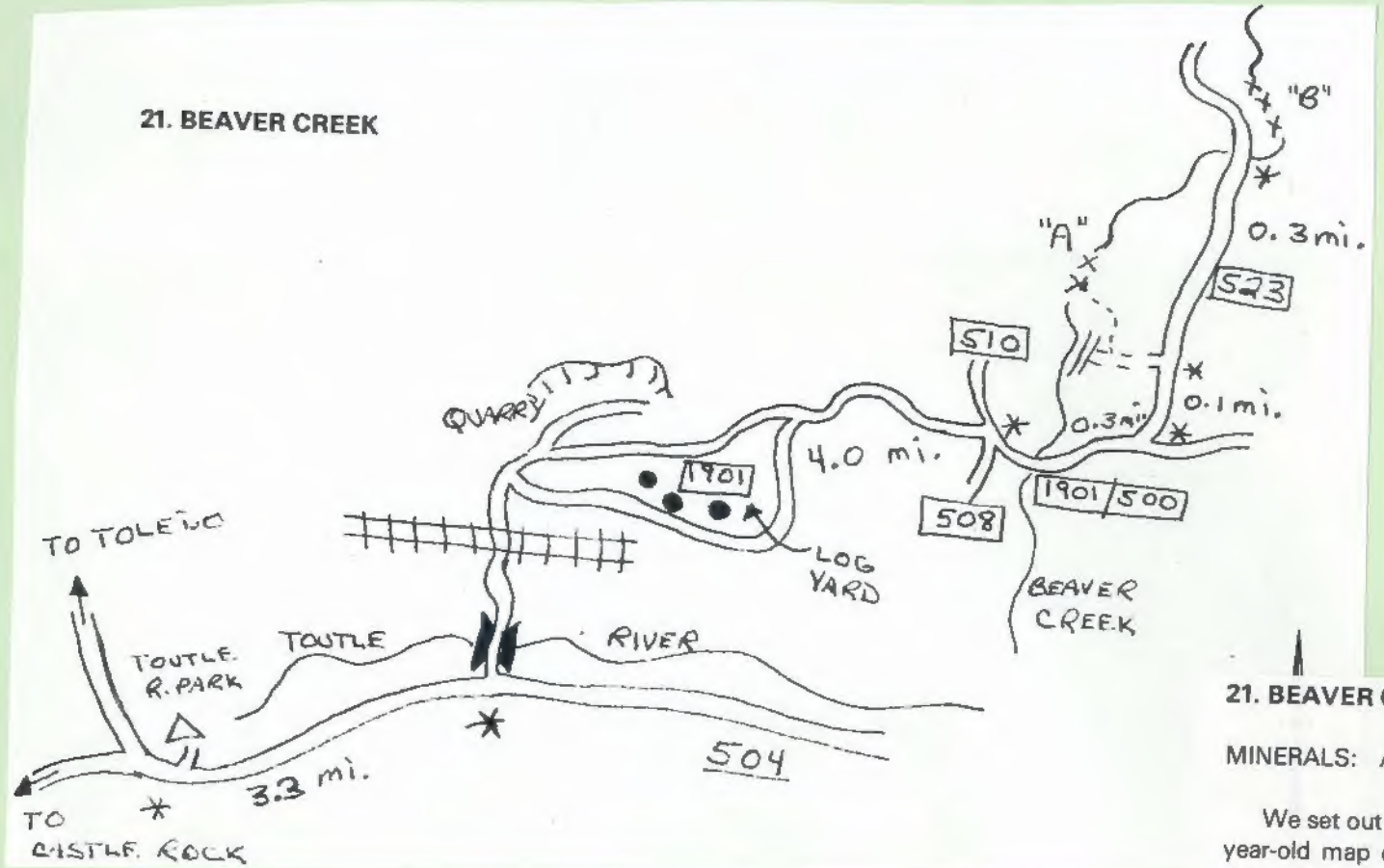
MINERALS: OPAL, PYRITE

We found a seam of unusual cutting material at a roadcut near Moses. The base is common opal of varying shades of green; scattered through the opal are small particles of shiny gold iron pyrite. The pyrite is not scattered uniformly throughout the opal, but at least a third of the opal we collected contained pyrite. The material is rather brittle, but cuts and polishes well.

You will need hard-rock tools here because a lot of basalt must be moved to recover the opal. The seams are less than two inches wide, so don't expect to cut 30 by 40 mm cabs from this material.

Please do not knock rock into the road. There is room to pull off the road just west of the locality — into one of the healthiest thistle patches in Washington. Do not wear shorts to this locality as we did!

The land immediately above the locality is privately owned. Trespassing is not permitted.



21. BEAVER CREEK

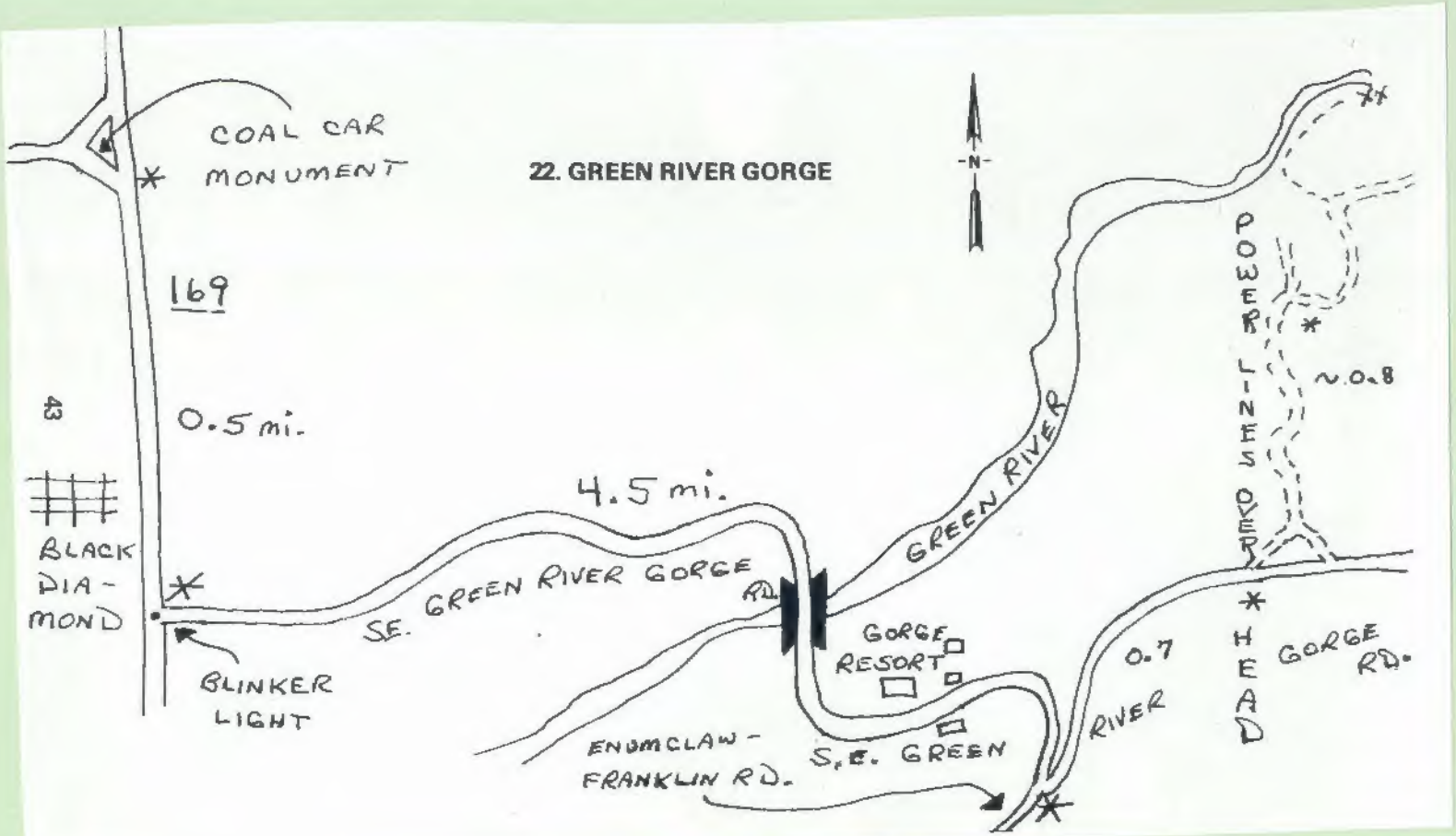
MINERALS: AGATE, QUARTZ CRYSTALS

We set out to find the Beaver Creek diggings, armed with a five-year-old map of the area. The road numbers have been changed since then, and we spent half a day in fruitless search. Finally we found the road which parallels Beaver Creek but had to stop where a dredge was parked in the road. We checked the material (clay) that the dredge had unearthed and found ten potato-sized nodules of carnelian in as many minutes. This is the area we recommend, marked "B" on the map. Apparently no digging has been done here except for the dredge work, so you will have to clear brush before you can dig. Please do not block the culvert with debris.

On our way out we got lucky and found the original diggings we had set out to find. This area is marked "A" on the map. The diggings are about 50 yards north of the collapsed bridge in a steep bank. A fallen tree also crosses the creek at this point. We dug here for an hour and found one nodule, banded agate with a crystal-lined center.

In either spot you will need boots, a mattock, and shovels. Both localities are on Weyerhauser land. Please obey Weyerhauser's use rules (posted at the entrances to their forests).

Beaver Creek (B): Looking northeast from road 523 to area around culvert.



22. GREEN RIVER GORGE

MINERALS: REALGAR, ORPIMENT, CALCITE, cinnabar, meta-cinnabar

The best realgar crystals ever found were produced from this small area in the Green River Gorge about ten years ago. The seam that produced the large ones is completely worked out, but fine smaller crystals can occasionally be found. The crystals occur embedded in veins of solid calcite in a brecciated sandstone and shale deposit.

You will need hard-rock tools to remove the calcite veins from the cliff. To expose the realgar, take home pieces of rock with calcite attached, then dislove the calcite with hydrochloric acid — also called muriatic acid and sold in swimming pool supply stores. (NOTE: Hydrochloric acid is hazardous. It will burn skin and eyes on contact. It is unstable and its vapors are poisonous and corrosive. Use it outside or under an exhaust hood designed for chemical work. Dilute it by adding acid slowly to a container of water. DO NOT ADD WATER TO CONCENTRATED ACID, as it may react violently and splatter. The reaction of hydrochloric acid and calcite produces carbon dioxide gas, which will bubble to the surface of the acid.)

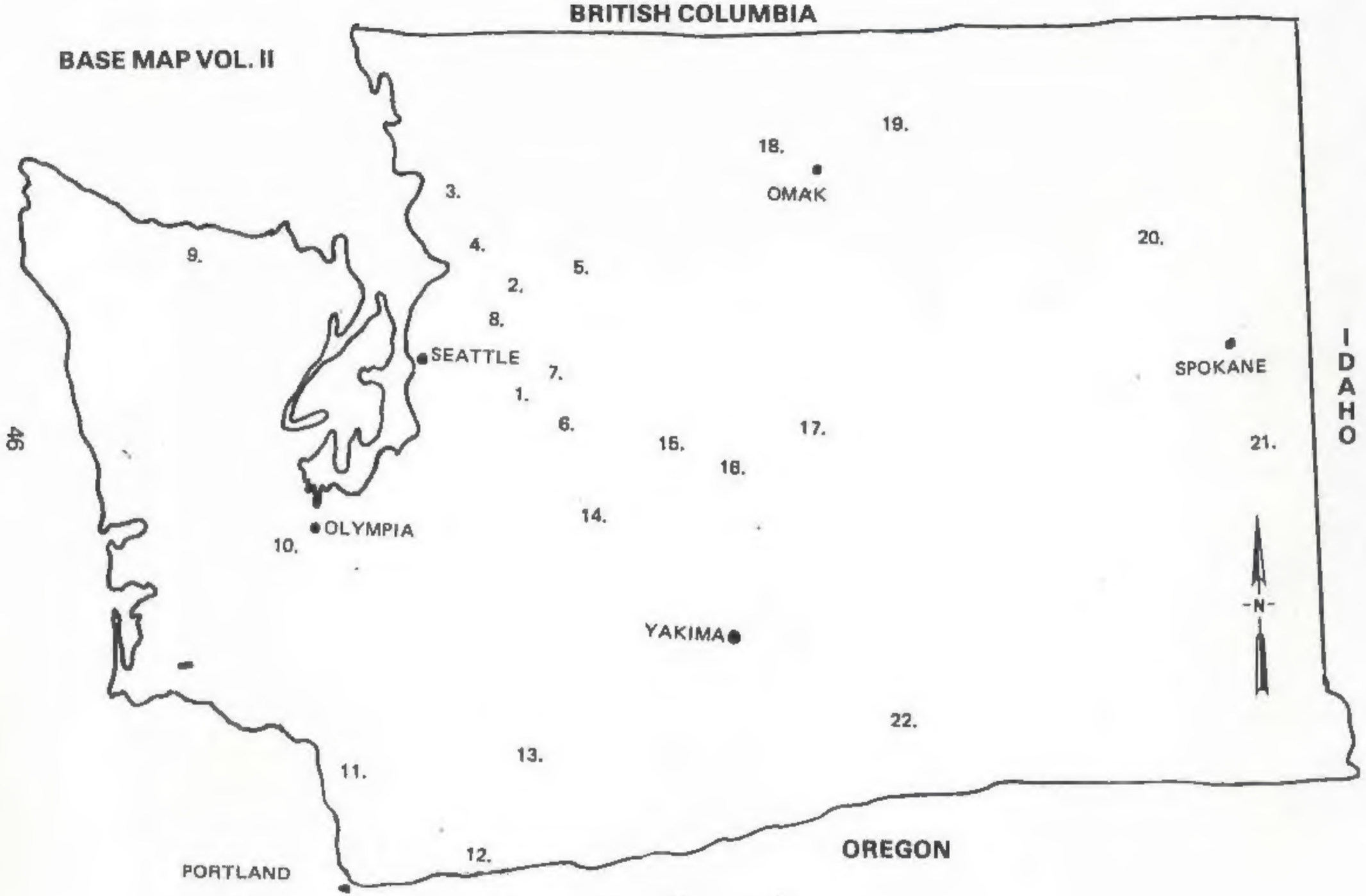
To reach the locality, drive down the powerline road until a road joins it on the right. At this junction the powerline support towers change to the wider type which support the wires across the river. The road which descends the hill is suitable for four-wheel-drive vehicles only. Descend this steep road (on foot if necessary) until you come to the corner indicated on the map. (This is before you reach the abandoned buildings.) A trail which begins at the corner descends the bluff. If you wear gloves, you can use a steel cable anchored to the bluff for support. Small children and pets will not be able to climb down this bluff — it is steep and slippery. When you reach the river, walk upstream until you come to an undercut cliff with evidence of realgar (bright red and orange weathering products). During most of the year you cannot walk further upstream than the locality without getting wet.

Hunt in the talus and the mine tailings. We do not recommend working under the overhang. You will need hammers and chisels to break rock into manageable-size pieces.

Realgar is arsenic sulfide, a poisonous compound. It is sensitive to light, which causes it to decompose.

Pay close attention to the river level while collecting. The Green River is dammed, and occasional release of water at the dam can change the river depth by several feet in a few hours, possibly cutting off access to the trail out.

The area directly across the river from the locality contains massive realgar but the land is privately owned. The owner does NOT permit collecting and prosecutes trespassers.


BASE MAP VOL. II
BRITISH COLUMBIA
IDAHO
OREGON
49
SEATTLE
OLYMPIA
OMAK
SPOKANE
YAKIMA
PORTLAND
1.
2.
3.
4.
5.
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